Differences Between Ethnic Culturals in Preference for Social and Cognitive Domain Criteria in Collaborative Learning Assessment

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Abstract

Collaborative learning is a way in which students can obtain the knowledge, skills, values, beliefs and behaviour to work in diverse environments. However, collaborative learning in education tends to emphasise cognitive domains more than social domains. The negation of social domains in collaborative learning can overlook collaboration processes in ethnically diverse groups. Hence, this study aimed at understanding the extent to which ethnically (culturally) diverse individuals differ in their perceptions and preferences for social and cognitive assessment criteria in diverse or non-diverse CL groups. This study consisted of a total of 99 participants, 55 of whom were categorised as individualistic and 44 as collectivists. The research questions were investigated by conducting a MANOVA and ANOVA analysis. The results showed that; 1) collectivists were more open to diversity than individualists, and 2) individualists preferred more social domains of assessment criteria regardless of whether they were in a diverse group or not compared to collectivists. There were no significant findings between collectivists and individualists in their preference for collaborative learning. The results suggest that individuals' ethnic culture, as well as the ethnic culture of the whole group, is considered in collaborative learning by emphasising social domains of assessment criteria.

Keywords: collaborative learning, assessment criteria, social domains, cognitive domains, ethnic diversity, collectivists, individualists.

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Alone we can do so little; together we can do so much.

- *Helen Keller, as cited in Lash 1980 p 489*

Humans are often referred to as the "social animal" (Aronson & Aronson, 2018, p. 1). From an evolutionary perspective, humans were obligated to collaborate, reaping the high benefits of setting common goals, sharing tasks and gathered resources, ensuring the exclusion of free riders and enforcing conformity (Tomasello, 2014). The need for collaboration amongst humans is a depiction of Helen Keller's quote (Lash, 1980). In today's modernised world, socialisation and collaboration emerge through educationalisation, i.e. preparing learners for socially desirable and societally required norms, values, skills and behaviours (Depaepe, 2012). Collaborative learning (CL), with its emphasis on both social (e.g. interpersonal communication) and cognitive skills such as goal setting (Hesse et al., 2015; Tomasello, 2014), can play a role in this process.

Nations have become increasingly multi-ethnic (i.e. having people from different cultural groupings) and more accepting of diversity within their mono-ethnic (i.e. having people from the same cultural groupings) communities. As a result of globalisation, internationalisation, and digital technology, the diversity within nations increases, although the cultural distance, which is the degree to which nations differ in their shared norms and values (Hofstede, 1984), remains relatively the same (Beugelsdijk et al., 2015). Hence, promoting the need for socialising and collaborative skills (e.g. problem analysis and adaptation) as a tool to navigate within a diverse world (Emert & Pearson, 2007; Ramsey, 2015; Sheppard, 2007).

The educational system (formal and informal) is a pathway through which nations and communities have passed on their cultural knowledge, skills, values, beliefs and behaviour (Hopkins, 1992; Patterson & Kelley, 2000). The cultural heritage of knowledge, skills, values and beliefs are retained and redefined within educational systems. Therefore, this study aims at understanding the differences between ethnically (culturally) diverse individuals in their perceptions and preferences for social and cognitive assessment criteria in CL in ethnically (culturally) diverse and non-diverse social constellations.

Collaborative Learning

The social and cognitive skills developed in CL overlap with those found in much broader concepts such as 21st-century skills and critical (global) citizenship education (de Andreotti, 2014; Hartung, 2017). Hence, CL can be used as a didactical strategy through which skills in the concepts above can be stimulated and taught (Hattie, 2009). CL is recognised by several names, for instance, cooperative learning, group work or peer learning in the literature (Meijer et al., 2020). In this study, *Collaborative learning (CL)* is defined as:

> a learning phenomenon where individuals in a social constellation (e.g., group, team, or community) within a physical and/or virtual environment, interact on the same or different aspects of a shared task to accomplish implicit or explicit shared and individual learning goals (e.g., domain-specific knowledge or skills, social skills, etc.). Collaborative learning is structured by collaboration scaffolds (which can be faded if no longer needed) provided by an agent(s) within or outside of the social constellation (e.g., teacher, peer, self, technology) to guide interaction and increase the likelihood that social constellations and/or individuals can accomplish their goals. An agent(s) within or

> outside of the social constellation diagnoses and/or evaluates the constellation's and/or individual's accomplishment(s) against criteria and standards. (Strijbos 2016, p. 302)

This definition highlights the eight core components of CL, as described by de Hei et al. (2016), condensed into four core elements of CL in this study. Firstly, a social constellation (e.g., a team) in which one is a member must emerge. Secondly, this social constellation must interact with tasks to achieve shared or individual learning goals. Thirdly, members of social constellations are supported by internal (e.g., other group members) or external agents (e.g., teachers) through scaffolding (Rojas-Drummond & Mercer, 2003) in the achievement of defined goals. Fourthly, CL assessment is aligned with the pre-defined objectives and guided by set criteria. For example, for a CL task to improve communication skills, other social constellation members may be assessed against criteria such as clarity of the presented message. These four elements set the foundation for CL and are the central themes in conducting this research.

Over the past century, CL has been noted as invaluable to learning (Strijbos, 2016). For instance, collaborative groups tend to perform better on complex tasks (i.e., any task with interactions or steps) than individuals (Kirschner et al., 2009; Watson et al., 2002). Laal and Ghodsi (2012) distinguish the benefits of CL into one of four categories; social, psychological, academic, and assessment benefits. Firstly, social benefits include those that create social support systems, build on an understanding of diversity, encourage the practice and modelling of cooperation, and reinforce learning communities. Secondly, psychological benefits encompass those that support positive teacher-student interactions, reduce anxiety through cooperation and enhance learner self-esteem through student-centred instructions. Thirdly, academic benefits include promoting critical thinking, active learning, personalisation of lessons, motivation, problem-solving techniques, and improved academic performance. Lastly, and more arguable, is

assessment techniques which suggest that the CL teaching techniques can be assessed in a variety of manners. These alternative assessment methods (e.g. teacher continuous observations, group grading or peer assessment) generate insight into students learning and create an opportunity for teachers to provide support during the learning process. Despite the benefits of CL, challenges regarding the practice of CL remain, such as those in assessing CL (Strijbos, 2016).

Collaborative Learning Assessment

CL has a long history in the social, cognitive and primarily educational sciences (Cabrera et al., 2002; Care et al., 2016). Despite CL being a commonly used and beneficial learning tool (Laal & Ghodsi, 2012), the assessment aspect in regards to CL has remained a challenge (Meijer et al., 2020; Strijbos, 2016). Strijbos (2016) highlights three challenges of CL assessment: (1) individual vs. group level, (2) convergence vs. similarity, and (3) that it is not all about cognition. Firstly, the individual vs. group level challenge states that through individual accountability, which proposes that everyone is responsible for their learning and performance, CL can be assessed at the group, individual or combined level (i.e., the final grade combines individual and group assessment). Individual accountability and grading are a concern as it provides the evaluator with limited information on group processes. Secondly, the convergence vs. similarity challenge refers to whether group members' knowledge and skill outcomes are the same as opposed to similar. This sameness is inferred as an outcome of convergence, a collaboration process. Thirdly, the CL challenge, “it is not all about cognition”, can be understood as to how outcomes of CL go beyond cognition (e.g. how do members in a group monitor tasks) and include motivation (e.g. does the student feel intrinsically motivated) and social (cohesion) aspects (e.g. how do members negotiate differences in a group). To date, the study of social

outcomes directing the assessment of CL has not been emphasised as strongly as compared to cognitive and motivational aspects. Addressing the "it is not all about cognition" could give insight into CL assessment and at least mitigate its impact on learners and educators. For these reasons, the third challenge is the focus of this study.

Collaborative problem solving (CPS) is when a "group has a goal of solving a novel problem by formulating a plan to move from a starting state to a goal state when no routine plan or script is available" (Graesser et al., 2018). The core elements of CL, e.g. social constellation (de Hei et al., 2016), are equally evident in CPS. Nevertheless, CPS falls under the umbrella of CL and is characterised by two overarching domains which emphasise two (social and cognitive) of the three elements (missing motivation) of the "its not all about cognition" challenge (Strijbos, 2016). The *social domain* refers to the "collaborative" skills required in coordinating and managing the contributions of group members and consists of three parts: *participation* (e.g., engagement and interactions with others), *perspective taking* (e.g., adaptation, communication, ability to understand another) and *social regulation*, e.g., negotiation of differences, evaluation and responsibility (Hesse et al., 2015). The *cognitive domain* refers to the "problem-solving" skills required to manage the task and the reasoning applied, which consists of two parts: *task regulation* (e.g., problem analysis, resource management, goal setting) and *knowledge building*, e.g., connecting information, outcome monitoring, reflection (Hesse et al., 2015). These two domains appear to sit at opposite ends, as pursuing one domain could potentially hinder the other (Slavin, 1996). That is, dealing with group dynamics, cohesion, and conflicts (social domain) could divert the time and effort away from performing and staying on task (cognitive domain). However, Slavin (1996) states that the cognitive, motivational and social (cohesion) outcomes of CL are not contradictory but complementary. Watson and colleagues (2002) suggest that first

dealing with interpersonal aspects (social domain) in CL in the early stages of group work and only then focusing on the more organisational tasks (cognitive domain) could result in better performance on assignments. This suggestion is supported by their findings that ethnically diverse groups who focused more on and dealt with interpersonal processes earlier during CL performed better on the assigned project.

Outcomes of CL include a variety of cognitive and social skills, such as managing resources and adapting to new circumstances and people. The skills developed through CL are crucial in communities (Care et al., 2016; Tomasello, 2014). For instance, social skill development is an essential variable that enhances the efficacy of group work in terms of cognitive and academic outcomes (Buchs & Butera, 2015). Highlighting the social domain of collaborative problem solving may give insight into how best to deal with CL and guide its assessment. Moreover, the use of assessment criteria could assist in promoting the development and measurement of social and cognitive domains of CL.

Assessment criteria

Assessment criteria or criterion-based and variations of this (e.g. criterion-referenced) assessment in education are broadly referred to as, "A criterion-referenced test is one that is deliberately constructed so as to yield measurements that are directly interpretable in terms of specified performance standards" (Nitko, 1971, p. 3). Moreover, assessment refers to the "process of forming a judgment about the quality and extent of student achievement or performance, and therefore by inference a judgment about the learning that has taken place" (Sadler, 2005, p. 177). Furthermore, criteria/criterion refers "to a property, quality, characteristic or attribute of a student response" (Sadler, 2009, p. 2).

Criterion-based assessment is rationalised in that students are graded on their outcomes or work and not through norm-referencing, using other students' performance as a point of reference to grade the student (Sadler, 2005). Additionally, the criteria guide and support students in their learning and performance of a set task by using the criteria information to mould development and guide task performance (Sadler, 2005). Nevertheless, despite criterion-based assessment being appealing in HEI, there remains a discourse on how to approach and conceptualise criterion-based assessment (Sadler, 2005).

Strijbos (2010) notes that the operationalisation and subsequent measurement of CL are determined by what outcomes of CL are deemed relevant. Typically in CL, the assessment criteria tend to cover the cognitive aspects (e.g. knowledge building) and overlook the social aspects, e.g. dealing with conflict (Hesse et al., 2015; Slavin, 1996; Strijbos, 2016). This emphasis on cognition is seen in the challenge of "it's not all about cognition". Strijbos (2016) proposes three aspects that courses should ideally consider in CL assessment. Firstly, assessment should measure the process and product of CL targeting the individual and group levels. Secondly, the evaluation should be formative, taken during the process, e.g. before and during the CL, and summative, e.g. after completing the task. Lastly, assessment should assess and promote the processes and outcomes of social, cognitive and motivational domains. These considerations, however, are not always met given the challenges in CL assessment and the lack of consensus on core CL mechanisms. For instance, the discourse in assessment regarding individual accountability (i.e., individual student accountability in CL contributions) and positive interdependence refers to individual student performance dependency on other group members' performance (Meijer et al., 2020; Slavin, 1980; Strijbos, 2016).

Hence, understanding the perceptions and use of criteria used in CL assessment could assist in advancing an inclusive set of ideal considerations regarding CL assessment. Moreover, understanding students' preferences for social and cognitive domains in CL assessment can support pedagogical and educational practices in addressing student needs.

Ethnic Diversity in Collaborative Learning

Definition

Diversity is "a complex and nuanced construct that represents an array of identity factors such as race, ethnicity, gender, and disability" (Fuentes et al., 2021, p. 71). Diversity, however, extends to broader dimensions such as unobservable (e.g., values, personality), functional characteristics (e.g., skill, knowledge) and observable characteristics, e.g., race, gender (Harrison & Sin, 2006). This study will focus on *ethnic diversity*, where *ethnicity* "refers to groupings defined by a common national or regional origin, with a consequently assumed commonality (to some degree) of culture and language" (Ver Ploeg et al., 2004, p. 32).

Ethnicity is a complex variable in that it can be interpreted to mean several characteristics, e.g. race, nationality of an individual (Juby & Concepción, 2005) and, hence, measured in several ways. Phinney (1996) proposed that at least three elements can be used to describe ethnicity. These dimensions include the following; 1) cultural behaviours, attitudes and values, 2) subjective self-identified ethnicity, 3) experiential ethnicity associated with minority status, e.g. discrimination. Describing ethnicity in terms of culture is often the accepted approach to conceptualising and measuring ethnicity (Betancourt & Lopez; Li et al., 2007; Phinney, 1996). For example, research supports the use of cultural consensus analysis in ethnicity research (Li et al., 2007), which aims at identifying groups (e.g. ethnicity) with shared values, for instance (Weller, 2007).

Hofstede's (1984) cultural dimensions is a way through which assumed commonalities or shared cultural behaviours, attitudes and values between "groupings", cultures, or ethnicity can be conceptualised and essentially direct measurement (Betancourt & Lopez; Li et al., 2007; Phinney, 1996). Cultural differences or distance broadly refers to the degree to which nations differ in their shared norms and values (Hofstede, 1984). These cultural differences are categorised by Hofstede (1984) into four dimensions; 1) individualism/collectivism (i.e. emphasis on the individual or community), 2) power distance (i.e. referring to the acceptance of inequalities of power in society), 3) uncertainty avoidance (i.e. extent to which unstructured, unclear, or unpredictable situations evoke one to become nervous), and 4) masculinity/feminity (i.e. highlighting traditional social roles based on the biology of two distinguishable sexes). These dimensions are valid and reliable between and within cultures (Beugelsdijk et al., 2015). Hence, promoting the need for socialising and collaborative skills (e.g. problem analysis and adaptation) as a tool to navigate within the diverse world (Emert & Pearson, 2007; Ramsey, 2015; Sheppard, 2007) whether or not one is in an ethnically (cultural) diverse social constellations.

Collaboration in ethnically diverse groups

Research shows that individuals in collaboration situations often prefer or favour working with other ethnically culturally similar others and less in ethnically culturally diverse groups (AlShebli et al., 2018; Strauss & Young, 2011). For instance, the preference for working with ethnically (culturally) similar others may set an uncomfortable or at least difficult start when working in an ethnically (culturally) diverse group (Strauss & Young, 2011). Moreover, ethnic (cultural) diversity in CL groups hints at one's preference for CL and openness to diversity,

especially within HEI, which are centres of internationalisation. Hence, supporting the exploration of ethnic (cultural) diversity in CL.

Nevertheless, once individuals are part of an ethnically diverse CL group, group members have a few hurdles to overcome to ensure they are not engulfed by the challenges of working or learning in ethnically diverse groups. That is, diversity in CL can result in conflict and counterproductive behaviours such as social loafing (Meijer et al., 2020) and hinder individuals from reaping the benefits of CL and diversity in teams (Bishnoi, 2017). Additionally, CL in diverse groups can be highly emotionally charged, and the expectation of using politically correct language can hinder discussions (AlShebli et al., 2018). Moreover, research suggests the need for extra facilitation support for groups in culturally diverse groups (Popov et al., 2013). For instance, group members in ethnically (culturally) diverse groups, unlike same culture groups, may encounter more misunderstandings (social domain) and coordination of tasks (cognitive domain), whereas, same cultural groups because of shared socio-behavioural norms and similar styles of communication. As such, ethnically (culturally) diverse groups would need to overcome challenges and emphasise social domains of CL more so than ethnically (culturally) similar groups in CL (Lim & Liu, 2006; Popov et al., 2013). Nevertheless, CL in (ethnically) diverse groups is not as bleak as presented. That is, collaboration in diverse groups promotes creativity (Chiu, 2008), the development of soft skills (e.g., negotiation, listening skills, interpersonal skills, compromise), and encourages the breakdown of stereotypes (Cabrera et al., 2002).

Despite the potential positive outcomes of CL in (culturally) ethnic diverse groups, there needs to be an intention and effort to overcome the barriers that may hinder individuals from reaping the benefits. For instance, collectivists, compared to individualists, are group orientated

(Economides, 2008) and can blur differences between members, reducing the disruptive effects of group diversity in achieving a shared goal (Chatman et al., 2015). However, Kim (2015) suggests that individualism may support collaboration in diverse groups as the social constellation emerges. Moreover, Watson and colleagues (2002) found that compared to ethnically non-diverse groups (predominately white), ethnically diverse groups focused more on interpersonal issues than organisational tasks, reported less self-orientation and performed better on team projects. These mixed findings suggest further exploration and support the investigation of CL assessment criteria (cognitive and social domains) within ethnically diverse groups.

Research Questions

This research aims to study and explore Dutch HEI students' perspectives of ethnically diverse CL groups and assessment criteria (social vs. cognitive). In this study, the following research questions are investigated;

1. To what extent do ethnically diverse individuals differ in their preference for collaborative learning?
    a. To what extent do ethnically diverse individuals differ in their openness to diversity?
    b. To what extent do ethnically diverse individuals differ in their beliefs about cognitive and social domains of collaborative learning assessment?
2. To what extent does ethnic diversity in group composition influence students' preference regarding assessment criteria (cognitive vs. social)?

Method

Research design and procedure

The quantitative 2x4 factorial research design study aimed at measuring students' perceptions of ethnic diversity and assessment criteria in CL as presented in vignettes. Data collection was conducted online through the Qualtrics platform from 19 February 2022 to 28 March 2022. Participants were recruited from the researcher's social media (Instagram, LinkedIn, Facebook and WhatsApp), through organisations associated with HEI around the Netherlands, student platforms, and SurveyCircle (2022). Participants could access the questionnaire through a Qualtrics link in Dutch or English. The questionnaire first informed participants about the research and then asked for informed consent (Appendix A). If consent was given, the participant proceeded with the questionnaire.

Participants

The questionnaire was accessed by 154 participants. However, 54 participants were excluded for one of three reasons, (1) no consent was provided, (2) they did not meet the criteria of being enrolled at a HEI in the Netherlands, or (3) incomplete questionnaire. The final sample consisted of 100 participants studying at a HEI in the Netherlands. Of these participants, 25% identified as male, and 75% as female. Participants' ages ranged between 19 to 41 (M = 24.16, SD = 3.80). The majority of participants held nationality of a European country (85%), 64% represented by the Netherlands. The remaining 15% were represented by various regions outside of Europe, with the most common nationality being from China (4%). Participants identified with ethnicities condensed into non-white (n = 18) and white (n = 80), with two preferring not to say. Of the 100 participants, 45% were enrolled in a Bachelor's program, and 55% were in a Master's program. Participants spanned various fields of study, as categorised using the ISCED

Fields of Education and Training (Unesco Institute for Statistics, 2014). The majority of students were from the faculty of Business and administration (32%), followed by Education (19%), Social and behavioural sciences (13%), Social sciences, journalism and information (7%), Arts and Humanities (7%), Engineering, manufacturing and construction (5%), Services (4%), Health and welfare (4%), Law (2%), Natural sciences, mathematics and statistics and 2% which were unidentified. The majority of participants (45%) came from universities within the province of Groningen, followed by universities in the provinces of South Holland (19%) and Utrecht (12%). The remaining 24% are represented by universities in the provinces of Friesland (3%), Gelderland (2%), North Brabant (8%), North-Holland (5%) and Overijssel (6%).

Material

The materials consisted of a data collection with a vignette and five blocks of questions, excluding the demographic information. All scale items were measured using a 5-point Likert scale where 1 (*strongly disagree*) and 5 (*strongly agree*).

Horizontal and vertical individualism and collectivism

Hofstede's (1984) research of cultural differences and measurement dimensions is one way in which ethnicity, assumed commonalities or culture (Ver Ploeg et al., 2004) could be used as a measurement of ethnicity as seen in cultural consensus analysis (Li et al., 2007; Weller, 2007). There are a total of four cultural dimensions; however, two of the dimensions, 1) collectivist-individualistic and 2) power distance (horizontal-vertical) dimensions, as described by Hofstede (2011), have been used in educational research (Hofstede, 1986). Dimensions differ in that the collectivist-individualist dimension measures the extent to which individuals emphasise community relationships, norms and in-group aims (collectivism) or the personal independence, exchange relationships, personal values and goals (individualism). The power

distance dimension measured as vertical-horizontal examines individuals' value for equality (horizontal) and hierarchy (vertical). These two dimensions together result in four collectivism-individualism types (Sivadas et al., 2008); 1) horizontal-collectivist (HC) persons: who emphasise interdependence and equality), 2) horizontal-individualist (HI) persons: who emphasise personal independence while not wishing for special status for persons (equality) 3) vertical-collectivist (VC) persons: emphasising interdependence in their group ('us') but competing with out-groups ('them') and 4) vertical-individualist (VI) persons: emphasising personal independence but with hierarchic structure, individuals have their special status in the group.

These categories are used to describe the ethnic-cultural backgrounds of individuals. The individualism-collectivism types are an appropriate measurement within the study of CL because the collectivism-individualism dimension highlights the preference and attitudes for CL and diversity in groups (Singelis et al., 1995). The horizontal-vertical dimension highlights the interactions within social constellations. The collectivist-individualistic types are a commonly used measurement of (ethnic) cultural differences between countries shown to be valid and reliable (Singelis et al., 1995; Triandis & Gelfand, 1998). Various adaptations and versions of the horizontal and vertical individualism and collectivism (HVIC) scale have been constructed. In this study, the HVIC adapted scale by Sivadas and colleagues' (2008) was used because the study provided evidence that even with fewer items compared to longer measures (Singelis et al., 1995), the measure performed better. The scale has also been validated in four contexts (Sivadas et al., 2008).

Current study

Ethnicity was measured using Sivadas and colleagues' (2008) 14-item scale for individualism-collectivism types on the horizontal-vertical dimensions of power distance. Two items of the original scale were changed from "co-worker" to "project group members" (Appendix B). The subscales of the *Horizontal-vertical individualism-collectivism* scale have the following Cronbach's Alpha: HI = .51, VI = .63, HC = .70 and VC = .48 which given the low Cronbach alpha of HI and VC was lower than the reliability found in the original study HI = .81, VI = .71, HC = .65 and VC = .75.

The subscales were added to create the individualism and collectivism scale because the reliability of the HI and VC subscales fell well below the relatively acceptable Cronbach's alpha of <0.6 (Tavakol & Dennick, 2011). The Individualism scale, which included the subscales of VI and HI, had a Cronbach's Alpha of .55. The Collectivism scale, which included the subscales of VC and HC, had a Cronbach's Alpha of .61. The reliability of the Individualism scale under the criteria of 0.6 (Tavakol & Dennick, 2011) would be considered unacceptable, and the collectivism scale would be regarded as marginally reliable. A factor analysis of the scales revealed that none of the items needed to be deleted, supporting unidimensionality (Krekta et al., 2019; Taber, 2018).

Preference for collaboration

Preference for collaboration was measured using a four-item scale from Cabrera et al. (2002) with a Cronbach's Alpha of .78. An example item is: "I prefer learning in groups with other students to learning from lectures".

Beliefs of Collaborative Learning

Beliefs of Collaborative Learning were measured using four items constructed for this study using de Hei and colleagues (2015) Learning Belief sub-scale of Collaborative Learning Beliefs as an example for creating items (Appendix C). The scale consisted of two subscales; social and cognitive domains with two items each. An example of items was "Collaborative learning allows me to improve my social skills" (social subscale) and "Collaborative learning is more of a cognitive skill than a social skill" (cognitive subscale). The social subscale had a Cronbach's Alpha of .34, and the cognitive subscale had a Cronbach's Alpha of .19. Given the low Cronbach's Alpha being < 0.6 for both sub-scales (Tavakol & Dennick, 2011), this scale and its subsequent research question will not undergo further analysis.

Openness to Diversity/Challenge

The eight-item *Openness to Diversity/Challenge* scale by Pascarella et al. (1996) measured students' willingness to interact and collaborate with diverse students. An example item is "I enjoy taking courses that challenge my beliefs and values". The scale had a Cronbach's Alpha of .87.

Vignette

The use of vignettes allows for context-specific deductions. It is a promising method in quantitative research as it promotes more reliable and valid results as opposed to classical experiments and survey methodology independently (Atzmüller & Steiner, 2010). Four variations of vignettes (Appendix D) were constructed; 1) diverse social constellation and cognitive assessment criteria (abbreviated as DC), 2) diverse social constellation and social assessment criteria (abbreviated as DS), 3) non-diverse social constellation and cognitive assessment criteria (abbreviated as MC), and 4) non-diverse social constellation and social

assessment criteria (abbreviated as MS). Where non-diverse social constellation refers to a social constellation of similar others based on self-identified ethnicity. The scenarios in the vignette were constant in grading type, group size, and motivation toward the course content. The vignettes were constructed to reflect the four core elements of CL or a more condensed version of the eight core components of CL as described by de Hei et al. (2016).

Vignettes varied in (1) ethnicity and (2) assessment criteria. Ethnicity was presented as one of two variations: (a) an ethnically diverse group of five students with a mix of Dutch, Indian, East European and African from South of the Sahara ethnicities, and (b) a non-ethnically diverse group with five students from group members with a similar ethnic and national background as the participant, using the autofill function in Qualtrics. This method was used because research shows that perceptions of diversity vary between racial and ethnic groups (Ancis et al., 2000), and self-identified ethnicity is not always constant (Ver Ploeg et al., 2004). Moreover, having a set non-ethnic group could potentially confound findings given the varying difference between ethnically different individuals on the perception of diversity because of white privilege, different cultural perceptions of diversity, ambiguous cues (e.g. faces), concern for in-group, social dominance and personal characters among others (Bauman et al., 2014; Danbold & Unzueta, 2020; Rankin & Reason, 2005; Unzueta & Binning, 2012; Unzeta et al., 2012). Lastly, ethnicity is more than just one's nationality or race; hence, using participants' self-identifications allows for the concept of similarity to be taken from their perspective, which is often more valid and reliable than that of an external observer (Ver Ploeg et al., 2004). Two variations were constructed for assessment criteria: (a) the social domain of CL (explained as “social skills highlight the way in which your group worked, the participation of group members, the perspective-taking of individuals, the social regulation in the group, and the collaborative

aspect of the assignment”), and (b) the cognitive domain of CL (explained as “way in which your group managed the assignment, how you regulated tasks, and built knowledge, etc. and emphasises the problem-solving aspect of the assignment”).

Preference for assessment criteria

Preference for assessment criteria was measured using 17 constructed items inspired by Hesse et al.’s (2015) perspective on the social and cognitive domains of CL and constructed for this study. *Preference for assessment criteria* consisted of two subscales: (1) *social domain* (measuring participation, perspective and social regulation) consisting of 8 items and (2) *cognitive domain* (measuring task regulation and knowledge building) consisting of 9 items. This scale was used to measure participants' preference for the social or cognitive domain aspects of CL. Using “To what extent do you think that the assessment criteria (i.e. emphasis on the social or cognitive domain), in the scenario you read, …” as a prompt, some example items include; “ ... promotes meaningful interactions with other group members”, and “... develops your ability to monitor the set group outcomes” (Appendix E). The preference for assessment criteria scale had a Cronbach's Alpha of .80 for social assessment criteria and a Cronbach's Alpha of .83 for cognitive assessment criteria.

Analyses

The quantitative data will be analysed using SPSS Statistics 26. First, a pre-analysis inspecting the data and observing any violations in assumptions will be executed. A one-way ANOVA will be conducted to analyse to what extent individualists and collectivists differ in their preference for CL and openness to diversity. A MANOVA analysis will be conducted to analyse the interaction between ethnicity and vignette type on perceptions of social and cognitive assessment criteria. The threshold for *p-values* will be <0.05 for Effect size ((partial) eta

squared), 0.01 indicates a small effect; 0.10, a medium effect; and 0.25 a large effect size (Vacha-Haase & Thompson, 2004). Reliability of scales at or above 0.6 will be considered sufficient (Tavakol & Dennick, 2011).

Results

Data Inspection

The normality assumption was examined from standardised skewness and kurtosis, with statistic values meeting the normality assumption falling between +3 and -3 (Tabachnick et al., 2007). The skewness of all dependent variables except for openness to diversity was within range (Table 1). Openness to diversity indicated a negatively (left) skewed distribution with a statistic of -3.19. However, given that real data does vary from the normal distribution and that the distribution can be considered "slightly" skewed, a data transformation was deemed unnecessary, especially as there were no concerning outliers (Blanca et al., 2013). The kurtosis of all dependent variables was within range (Table 1). The dependent variables were examined for outliers, and none of the participants had to be removed from the analysis. Linear regression was conducted between all dependent variables against independent variables to assure homogeneity. Results support a linear relationship between variables. A homogeneity test of variance-covariance matrices was conducted to which the results of the Chi-squared showed no relation between the variables. Multicollinearity was examined between vignette and collectivist-individualist types to which there was no indication of violation, $r = .11$, $p = .28$. Linear regression confirmed that multicollinearity was not violated, $t = 1.10$, $p = .28$, $VIF = 1$.

Table 1

Standardised Skewness and Kurtosis

	Skewness			Kurtosis		
Subscale	Value	SE	Std. Skewness	Value	SE	Std. Kurtosis
Preference for CL	-0.313	0.241	-1.30	-0.346	0.478	-0.07
Openness to Diversity	-0.768	0.241	-3.19	0.250	0.478	0.05
Preference for Social Assessment Criteria	-0.153	0.241	-0.63	0.463	0.478	0.096
Preference for Cognitive Assessment Criteria	-0.575	0.241	-2.40	3.025	0.478	0.63

Ethnicity

Two measures of ethnic culture were used: self-identified ethnicity and the horizontal-vertical individualist-collectivist (HVIC) scale. Two measurements were used because measurements of ethnicity have shown to be inconsistent across methods (e.g. self-identified ethnicity) and setting (Harris, 2002; Ver Ploeg et al., 2004). Self-identified ethnicity was used to allow an opportunity for participants to define their ethnicity from meaningful identifications (Burton et al., 2010). As taken from the demographic information, self-identified ethnicity

revealed a varied identification of ethnicities by participants and hence, a concern for violating equal sample groups. To tackle unequal sample groups, participants' self-identified ethnicity was condensed down to two groups, white (n = 80) and non-white (n = 18), consisting of Asian, Mixed, and Black individuals. Despite the condensed self-identified ethnicity groupings, there were still unequal sample groups, and the grouping of non-white could potentially perpetuate questionable research validity (Li et al., 2007). That is, grouping individuals into larger groupings such as Asian (consisting of several countries, e.g. China, Korea, Pakistan, Indonesia) is already problematic, let alone making a grouping such as non-white. This is problematic because the grouping of Asian or Non-White, for instance, overestimates the homogeneity within groups and heterogeneity between groups (Li et al., 2007; Phinney, 1996). Ethnicity or cultural differences as measured using the HVIC showed smaller differences in the sample size of groups, and the characteristics of the scale as a measurement method were less likely to question the validity.

Hence to ensure that the HVIC measured individual ethnic (cultural) differences and not self-identified ethnicity, a Pearson Chi-Square test was performed to check if these two variables were associated. There was no statistically significant association between self-identified ethnicity and horizontal-individualist types (HVIC), $\chi(3) = 2.57$, $p = .46$. Hence, only the HVIC scale was used to describe ethnicity.

Individualism-collectivism types

Participants were categorised into one of the four subgroups based on their highest mean score across types to identify the predominant individualism-collectivism type. Participants who had two or more equal mean scores on any of the four individualism-collectivism types were not coded under any of the four types and coded as missing data. There were higher mean scores for

horizontal-individualist, followed by horizontal-collectivists, vertical-individualist and then vertical-collectivist (Table 2). A total of 83 participants had one predominant individualism-collectivism type as follows; horizontal-collectivists (n = 40), horizontal-individualists (n = 33), vertical-individualists (n = 7) and then vertical-collectivists (n = 3).

Given the unequal subsamples of the individualism-collectivism types, participants were recoded into one of two categories: individualists and collectivists (Table 1). After recoding, 99 participants were categorised as individualists (n = 44) or collectivists (n = 55) based on their highest mean score. One participant had equal means between individualism-collectivism types and was not categorised in either group. The combining of subscales was based on the statistically significant correlation between HC and VC (r = .21, p = .035) for the collectivist scale. The VI and HI subscales did not have a statistically significant correlation (r = .13, p = .22) for the individualistic scale. Items were, however, unidimensional. The collectivist and individualistic scales were not correlated (r = .054, p = .59) and hence assumed to measure different ethnic (cultural) aspects of individuals.

Table 2

Means and Standard deviation of Individualism-Collectivism Types and Collectivists and Individualists Means Independently

	Mean	Std. Deviation
Horizontal Collectivists	3.86	0.62
Vertical Collectivists	2.88	0.68
Vertical Individualists	2.98	0.86
Horizontal Individualists	3.91	0.62
Collectivist	3.37	0.51
Individualists	3.45	0.56

Note: $N = 100$

Main Analysis

Preference for collaborative learning

A one-way ANOVA was conducted to investigate to what extent individualists and collectivists differed in their preference for CL. Results revealed no difference between individualists and collectivists (Table 3) in their preference for CL, $F(1, 97) = .51$, $p = .48$, $\eta^2 = 0.01$.

Table 3

Means and Standard deviation of Preference for Collaborative Learning

		N	Mean	Std. Deviation
Preference for CL	Collectivist	55	3.25	0.83
	Individualistic	44	3.13	0.86

Openness to diversity

A one-way ANOVA was conducted to investigate to what extent individualists and collectivists differed in their openness to diversity. Results revealed a statistically significant difference in Openness to Diversity between individualists and collectivists, $F(1, 97) = 4.71$, $p = .033$, $\eta^2 = 0.05$. The results show that collectivists ($M = 4.08$) compared to individualists ($M = 3.77$) have a higher openness to diversity (Table 4).

Table 4

Means and Standard deviation of openness to diversity

		N	Mean	Std. Deviation
Openness to Diversity	Collectivist	55	4.08	0.66
	Individualistic	44	3.77	0.76

Preference for cognitive and social assessment criteria

A MANOVA was conducted to analyse the extent to which the dependent variables preference for social and cognitive assessment criteria differed for the independent variables ethnic diversity (individualistic and collectivist) and vignette type. The results revealed no statistically significant for the multivariate effect of ethnicity, $F(7, 91) = .03$, $p = .97$, Wilks' $\Lambda = .999$, $\eta_p^2 = .001$, vignette type, $F(7, 91) = 1.11$, $p = .36$, Wilks' $\Lambda = .93$, $\eta_p^2 = .04$, nor interaction effect between ethnicity and vignette type on preference for assessment criteria, $F(7, 91) = 1.86$, $p = .09$, Wilks' $\Lambda = .89$, $\eta_p^2 = .06$. However, the between-subjects effects showed a significant interaction between ethnicity (individualistic and collectivist) and vignette type on preference for the social assessment criteria, $F(3, 96) = 3.51$, $p = .02$, $\eta_p^2 = .10$. With individualists total mean score being higher than that of collectivists (Table 5).

Given the significant interaction effect, a simple main effects analysis was conducted analysing collectivists and individualists. The multivariate tests were not significant for both collectivists, $F(3, 40) = 1.29$, $p = .27$, Wilks' $\Lambda = .86$, $\eta_p^2 = .07$ and individualists, $F(3, 40) = 2.05$, $p = .07$, Wilks' $\Lambda = .75$, $\eta_p^2 = .14$. Examination of the between-subjects effects there was a significant positive effect for vignette type on individualists' preference for social domain assessment criteria, $F(3, 40) = 3.61$, $p = .02$, $\eta_p^2 = .21$. Individualists who responded to the MS and DS vignette types emphasise social assessment criteria more than the other vignette types (Figure 1). The multiple comparisons test did not detect any significant difference between the vignette types of individualists on preference for social assessment criteria.

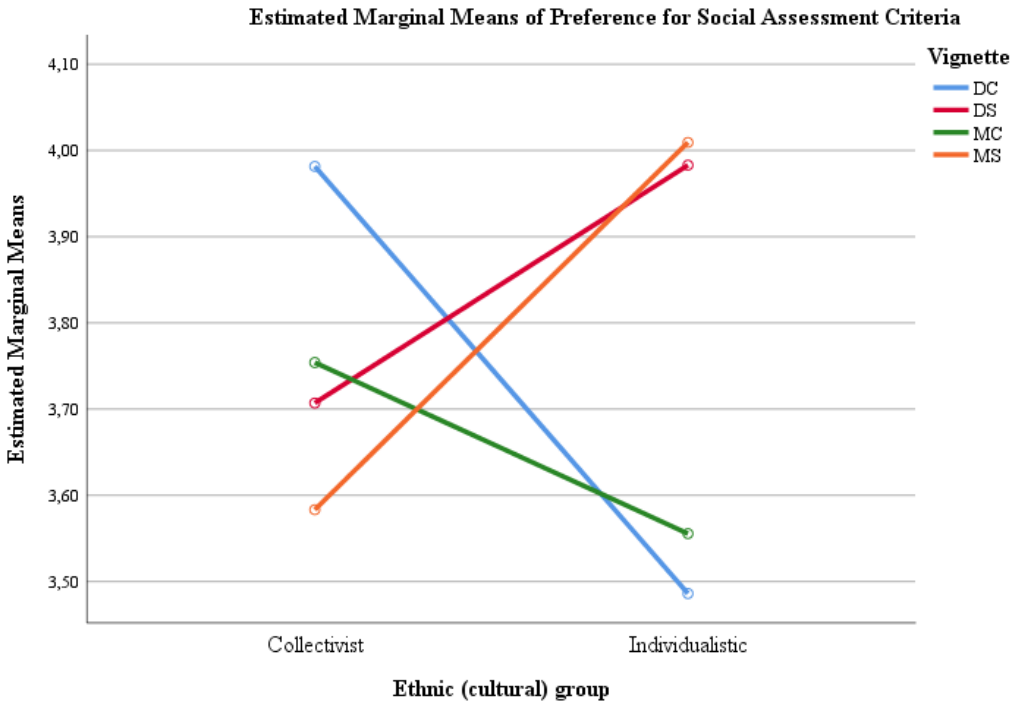
Table 5

Means and Standard deviation of interaction between preference for assessment type, collectivist-individualism and vignette type

		Vignette	Mean	Std. Deviation	N
Preference for Social	Collectivist	DC	3.98	0.50	18
		DS	3.71	0.67	11
		MC	3.75	0.72	14
		MS	3.58	0.51	12
	Individualistic	DC	3.49	0.34	8
		DS	3.98	0.61	13
		MC	3.56	0.40	11
		MS	4.01	0.43	12
Preference for Cognitive	Collectivist	DC	3.81	0.51	18
		DS	3.61	0.79	11
		MC	3.99	0.61	14
		MS	3.77	0.46	12
	Individualistic	DC	3.54	0.44	8
		DS	3.80	0.70	13
		MC	3.70	0.36	11
		MS	4.06	0.46	12

Note: DC = Diverse social constellation and cognitive assessment criteria vignette type
DS = Diverse social constellation and social assessment criteria vignette type
MC = Non-diverse social constellation and cognitive assessment criteria vignette type
MS = Non-diverse social constellation and social assessment criteria vignette type

Figure 1



Discussion

Summary of main findings

Preference for Collaborative Learning

The first research question consisted of two sub-questions, of which one is not addressed due to the low reliability of the scale. Firstly, individualistic and collectivist students did not differ in their preference for CL. This suggests that regardless of the ethnic-cultural background of individuals, all higher education students, despite cultural differences, have similar preferences toward CL. This is contrary to research by Cabrera et al. (2004), who found that minority and white students differed in their preference for CL, with minority students preferring CL more than white students. However, given the demand for CL skills such as individual responsibility and working in ethnically (culturally) diverse groups in the labour market (Chalkiadaki, 2018; Scott, 2015; Voogt & Roblin, 2010, 2012), it is conceivable that there would be no difference between individualists and collectivists in their preference for CL.

The second sub-question showed that ethnically diverse individuals differ in their openness to diversity. These results were significant, with collectivists being more open to diversity than individualists. This is to be expected because collectivists compared to individualists, are group orientated (Economides, 2008) and can blur differences between members, reducing the disruptive effects of group diversity in achieving a shared goal (Chatman et al., 2015). As such, because of more positive experiences in overcoming disruptive effects in diverse groups, collectivists are more likely to approach and be open to diversity through positive exposure experiences (Chatman et al., 2015). However, Kim (2015) suggests that individualism may support collaboration in diverse groups as the social constellation emerges. Hence, exploring openness to diversity throughout the CL process may clarify the contrasting findings.

Preference for social and cognitive assessment criteria

The second research question analysed the influence of ethnicity and vignette type on preference for social or cognitive assessment criteria. The results were not significant at the multivariate test level. Nevertheless, the between-subjects test showed that individualists prefered social assessment criteria more than collectivists. The simple main effects showed that individualists in the MS and DS vignette type preferred social assessment criteria more than collectivists, although findings were not statistically significant. Collectivists emphasise unity and group identity, whereas individualists are more open to uniqueness (Kim & Markus, 1999). Hence, compared to collectivists, individualists may incur more need and use of social domain skills in CL groups as research proposes that individualists can negatively impact group performance (Gundlach et al., 2006). As such, because of more use in balancing uniqueness with reaching group goals, individualists could, as found in the study, prefer social assessment criteria

more than collectivists. However, the results are taken to be inconclusive given varying significant findings and require further investigation by increasing sample sizes and power by decreasing unequal sample sizes and fair representation of all HVIC types.

Limitations

Sample

Size

The study was not without limitations. Firstly, a limitation was that although the study had a reasonable sample size of 99 participants, the sub-samples per vignette type and ethnicity (collectivist or individualist) were unequally distributed. This was a result of using simple randomisation of individuals to vignette type. Unequal sample groups can violate statistical assumptions and result in low power, reducing Type 1 Error and reducing power to identify an effect when there is one (Rusticus & Lovato, 2014; Sullivan & Feinn, 2012; Suresh, 2011).

Cultural dimensions as ethnicity

Within various fields of study, individualism-collectivism types and their dimensions have been widely used to explain cultural differences (Hui et al., 1991; Triandis et al., 1988). In this current study, ethnicity, as measured using two categories — white and non-white — was not associated with the individualism-collectivism types. This shows that there is more to ethnicity than just being black or white but engrained within cultural structures and supports the use of the HVIC scale (Sivadas et al., 2008) as a measurement. Komarraju and Cokley (2008) showed that ethnicity moderated the relationship between collectivism and individualism. This is an alternative finding to that found in the current study and other research, which found either no relation or mixed findings for the relationship between ethnicity and the

individualism-collectivism cultural dimension (Gaines et al., 1997; Vargas & Kemmelmeier, 2013).

Moreover, when examining the four individualism-collectivism types, there were more horizontal collectivists (n = 40), and horizontal individualists (n = 33,), compared to vertical individualists (n = 7) and vertical collectivists (n = 3). This suggests the power distance dimension among students in Dutch HEI is more horizontal, reflecting more equality amongst individuals. This characteristic can be better explained through age more than cultural characteristics as described by individualism-collectivism types (Oppenheimer, 2004). That is, students in university can be expected to be constructing perceptions of what their society looks like. These constructions are made through continuous interactions (e.g. CL) between individuals and their surroundings.

Moreover, given the political climate, youth demanding equality, and other societal developments, students are expected to become more horizontal. Oppenheimer (2004) found that in Dutch society, there is a change in power distance that can be explained by age and gender, with more horizontal characteristics of power distance emerging. These findings are further supported by research stating that females, young, and educated individuals, are more accepting of minority/marginalised groups (Kite & Whitley, 2016), and students tend to become more egalitarian in higher education hence holding more values of equality (Chatard & Selimbegovic, 2007). Regarding the broader collectivist and individualistic categories, there were more collectivist (n = 55) than individualistic (n = 44). These findings conflict with those of Oppenheimer (2004), who found an increase in individualism amongst Dutch students, which could be attributed to youth accepting individual accountability. Moreover, research suggests increased individualism worldwide (Santos et al., 2017). Nevertheless, the existence of more

collectivists can be attributed to the value of collaboration not only as evolutionary beneficial (Melis, 2013) but also because the skills developed in CL are considered valuable in the labour market (Beckman, 1990; Brunello & Schlotter, 2011). Hence, given the demands for communication skills, collaborative (social interaction) skills, individual flexibility, adaptability and responsibility in the labour market (Chalkiadaki, 2018; Scott, 2015; Voogt & Roblin, 2010, 2012) and the emphasis on the collective to the individual in a transformative-learning and forward-thinking sustainable community (Pelenc et al., 2015; VanWynsberghe, 2022) it is conceivable that there would be more collectivists in HEI. Larger sample sizes for the individualistic-collectivist types could give more insight into the differences regarding the dependent variables. Hence, suggesting further research into individualistic-collectivist and horizontal-vertical dimensions CL variables. Moreover, it is advised that in measuring ethnicity, future research implores cultural consensus analysis (Li et al., 2007; Weller, 2007).

Response bias

A limitation of the study was that individuals knew what the study was about and could anticipate the research question, resulting in a potential bias in responses. This was observed in the study as participants in the suggestion question at the end of the questionnaire made statements such as "*I'm used to working in groups and found that demographics never have any meaning regarding who does the most or doesn't do anything at all. Certain people are just unskilled and show no initiative, while others do. In my experience, demographics don't influence that*" (Participant 7). In a politically, socially charged society, and the provoking conversations that with discussing privilege, systematic discrimination in terms of being politically correct or "woke" may be socially desirable and hence susceptibility to bias (Ogbolu & Singh, 2013). Research on academic collaborations suggests a lack of motivation toward being

a member of an ethnically diverse group as opposed to gender and study affiliation in diverse groups (AlShebli et al., 2018). Hence, future research can explore the role of the ethnicity of individuals and within social constellations in CL by conducting a blinded study or supporting findings with qualitative data.

Reliability of Scales

Beliefs about social and cognitive assessment criteria

The beliefs of assessment criteria subscales only had two items each, to which the reliability was low. Studies have shown that more items on a scale with high reliability are better predictors and representations (Schmitt, 1996). Hence, adding more items and increasing the reliability of the beliefs scale could guide future research on preconceived beliefs on assessment criteria compared to perceptions in practice.

Individualism-collectivism types

The VC and HI subscales of the individualism-collectivism scales were below the accepted reliability of 0.6 (Tavakol & Dennick, 2011). Analysis through factor loadings showed no concern for items to be deleted suggesting unidimensionality. The items were grouped into individualism and collectivism because of the unequal sample sizes of the individualism-collectivism types. Despite combining subscales to create the horizontal and individualism scales, the individualism scale still fell below 0.6, at a Cronbachs alpha of 0.55. The analysis continued despite this on the support that other research has experienced similar problems (Booysen et al., 2021) and suggestions of Cronbach's Alpha in educational sciences (Taber, 2018). Although this justification was used to carry on with the analysis, this was a strong limitation of the study, and the reader should take caution in any deductions made. Further research is advised to have higher reliability on the scales.

Practical Implications for teachers

The study found that collectivists are more open to diversity than individualists. Additionally, individualists in the study preferred social assessment criteria regardless of whether in an ethnically (cultural) diverse CL group or not. The explanations for "why" individualists and collectivists differ in their preferences could not be deduced and were supported by research in the literature. Nevertheless, the results suggest that educators (i.e. teachers and lecturers) support students in the CL process. This support can be done directly by having teacher-student discussions on the CL process (as much as on the product) and how this may or may not impact the final product. An alternative way would be to include social domain criteria in the assessment of a CL task. The social domain criteria can be used as a guide for students to perform to their best ability and take advantage of the benefits of CL and overcome potential barriers.

Conclusions

Overall the results give insight into CL assessment criteria and (cultural) ethnic diversity. In conclusion, this research was a glimpse into a possible exploration of addressing the limitations of CL assessment. Hence, to you, the reader, scientist, researcher, teacher, or lay person, the baton (current paper) of findings is passed on. After all, "Alone we can do so little; together we can do so much".

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Appendix A

Research Information and Consent Form in English and Dutch

English Version

Welcome to the research study!

Dear student,

During this study, so-called "collaborative learning", also known as "group work", plays a major role. For example, students work together on a project or a research report. The final grade for a course (or part of it) is often based wholly or partly on an assessment of the group work, but there are large differences in the way this is done.

In order to find out more about how students experience the assessment of group work, students at Dutch higher education institutions are questioned in this study. This concerns a broad survey among students of different years and faculties.

What does participating in the study mean for you?
By means of a questionnaire, we examine how students from different faculties experience the assessment of group work. We use fictitious situations and ask students to put themselves in that situation and indicate how they would experience the assessment of group work. Completing the questionnaire takes about 20 minutes.

Consent
Prior to the study, we will ask you to indicate that you would like to participate in the study. Participation in the study is completely voluntary and you can stop at any time. So if you do not want to continue while filling in the questionnaire, you can stop. Of course, we hope that you will participate.

Use and storage of data
All answers given while filling in the questionnaire will be treated confidentially. This means that the questionnaires and answers are kept secure and that only the researchers can see the completed questionnaires.

The Qualtrics programme automatically collects the IP address of the person completing the questionnaire, but this information will be deleted immediately at the start of data processing. This means that the research results can never be traced back to you.

Your rights
If you no longer wish to participate in the study, you can indicate this to the researchers by contacting the project leader. Your data will then be removed from the data files. This is possible until the data are analysed (from 30 March 2022). If you have any questions about privacy, you can also contact the researchers. If the researchers cannot answer your question, you can submit it to the Data Protection Officer of the University of Groningen (via privacy@rug.nl).

In need of more information? If you would like to know more about the study, please contact the undersigned.

With kind regards, on behalf of the research team,

Tjanana Deurwaarder
Student Rijksuniversiteit Groningen
t.j.deurwaarder@student.rug.nl

Prof. dr. Jan-Willem Strijbos
Rijksuniversiteit Groningen
j.w.strijbos@rug.nl

Consent Form

Dear student,

Via this form you can indicate whether you want to participate in the questionnaire about how students experience the assessment of group work.

I have read the information letter and explanation of the questionnaire carefully. I understand what participation in the study entails.

I understand that participation in the questionnaire is voluntary. I choose to participate. I can stop participating at any time. If I decide to stop participating, I do not have to give a reason.

I indicate below whether I want to participate in the questionnaire or not.

I, a student at a higher educational institution in the Netherlands, consent to the participation in the questionnaire about how students experience the assessment of group work.

□ Yes, I consent to participate in the study; this permission runs until December 2022
□ No, I do not consent to participate in this study.

Dutch Translation

Welkom bij dit onderzoek!

Beste student,

Tijdens dit onderzoek speelt "samenwerkend leren", ook wel bekend als "groepswerk", een grote rol. Studenten werken bijvoorbeeld gezamenlijk aan een project of een onderzoeksverslag. Het eindcijfer voor een cursus (of onderdeel van een cursus) is regelmatig geheel of deels gebaseerd op een beoordeling van het groepswerk, maar er zijn grote verschillen in de manier waarop dit gebeurt.

Om meer te weten te komen over hoe studenten de beoordeling van groepswerk ervaren, worden in dit onderzoek studenten aan Nederlandse instellingen voor hoger onderwijs bevraagd. Dit betreft een grote groep studenten van verschillende jaargangen en faculteiten.

Wat betekent deelname aan dit onderzoek voor jou?
Middels een vragenlijst wordt onderzocht hoe studenten van verschillende faculteiten de beoordeling van groepswerk ervaren. We maken gebruik van fictieve scenario's en vragen je om je in een scenario te verplaatsen en aan te geven hoe je de beoordeling van groepswerk zou ervaren. Het invullen van de vragenlijst duurt ongeveer 20 minuten.

Toestemming
Voorafgaand aan het onderzoek vragen we je om aan te geven of je mee wil doen aan het onderzoek. Meedoen aan het onderzoek is geheel vrijwillig en je kan op ieder moment stoppen; als je tijdens het invullen van de vragenlijst niet meer verder wilt, dan mag je stoppen. We hopen natuurlijk dat je mee wilt doen.

Gebruik en bewaren van gegevens
Alle antwoorden die je geeft tijdens het invullen van de vragenlijst worden vertrouwelijk behandeld. Dit betekent dat de vragenlijsten en antwoorden beveiligd worden bewaard en dat alleen de onderzoekers de ingevulde vragenlijsten kunnen inzien.

Het programma Qualtrics verzamelt automatisch het IP-adres van deelnemers die de vragenlijst invullen, maar deze informatie zal bij aanvang van de dataverwerking meteen verwijderd worden. Dit betekent dat de onderzoeksresultaten nooit naar jou te herleiden zijn.

Jouw rechten
Als je niet langer mee wilt doen met het onderzoek, kan je dit aangeven bij de onderzoekers door contact op te nemen met de projectleider Jan-Willem Strijbos. Jouw gegevens worden dan verwijderd uit de databestanden. Dit is mogelijk tot het moment dat de gegevens geanalyseerd worden (vanaf 30 maart 2022). Als je vragen hebt over de privacy rondom dit onderzoek, kun je ook contact opnemen met de onderzoekers: Tjanana Deurwaarder en Jan-Willem Strijbos. Mochten de onderzoekers je vraag niet kunnen beantwoorden dan kun je deze ook voorleggen aan de Functionaris Gegevensbescherming van de Rijksuniversiteit Groningen (via privacy@rug.nl).

Behoefte aan meer informatie? Mocht je meer willen weten over het onderzoek, dan kan je contact opnemen met ondergetekende.

Met vriendelijke groet, namens het onderzoeksteam,

Tjanana Deurwaarder
Student Rijksuniversiteit Groningen
t.j.deurwaarder@student.rug.nl

Prof. dr. Jan-Willem Strijbos
Rijksuniversiteit Groningen
j.w.strijbos@rug.nl

Toestemmingsformulier

Beste student,

Via dit formulier kun je aangeven of je deel wil nemen aan de vragenlijst over de wijze waarop studenten de beoordeling van groepswerk ervaren.

Ik heb de informatiebrief en uitleg over de vragenlijst goed doorgelezen. Ik begrijp wat deelname aan het onderzoek inhoudt.

Ik begrijp dat deelname aan de vragenlijst vrijwillig is. Ik kies er zelf voor om deel te nemen. Ik kan op elk moment stoppen met deelname. Als ik besluit om te stoppen met deelname, hoef ik hiervoor geen reden op te geven.

Ik geef hieronder aan of ik wel of niet wil deelnemen aan dit onderzoek.

Ik ben een student aan een instelling voor hoger onderwijs in Nederland en geef toestemming voor de deelname aan de vragenlijst over de wijze waarop studenten de beoordeling van groepswerk ervaren.

□ *Ja, ik geef toestemming om deel te nemen aan het onderzoek; deze toestemming loopt tot December 2022.*
□ *Nee, ik geef geen toestemming om deel te nemen aan het onderzoek.*

Appendix B
Horizontal-vertical individualism-collectivism scale changes and Dutch Translation

Horizontal and vertical individualism and collectivism
Original: My happiness depends very much on the happiness of those around me. *Dutch Translation: Mijn 'gelukkig voelen' hangt sterk af van de mate waarin mensen om mij heen zich gelukkig voelen*
Original: I would do what would please my family, even if I detested that activity. *Dutch Translation: Ik zou doen wat mijn familie wenst, ook al heb ik een hekel aan die activiteit*
Original: I usually sacrifice my self-interest for the well being of my group. *Dutch Translation: Gewoonlijk geef ik mijn eigenbelang op voor het welzijn van mijn groep.*
Original: I enjoy working in situations involving competition with others. *Dutch Translation: Ik werk graag in situaties waarin ik met anderen moet concurreren.*
Original: The well-being of my co-workers is important to me. Changes to Original: The well-being of my project group members is important to me. *Dutch Translation: Het welzijn van mijn groepsleden/collega's is belangrijk voor mij.*
Original: I enjoy being unique and different from others in many ways. *Dutch Translation: Ik vind het leuk om in veel opzichten uniek en anders dan anderen te zijn.*
Original: Children should feel honoured if their parents receive a distinguished award. *Dutch Translation: Kinderen moeten zich vereerd voelen wanneer hun ouders een onderscheiding krijgen.*
Original: I often do my own things. *Dutch Translation: Ik doe vaak mijn eigen dingen.*
Original: Competition is the law of nature. *Dutch Translation: Concurrentie is de wet van de natuur.*
Original: If a co-worker gets a prize, I would feel proud. Changes to Original: If a project group member gets a prize, I would feel proud. *Dutch Translation: Als een groepslid/collega een prijs krijgt, zou ik me trots voelen.*
Original: I am a unique individual. *Dutch Translation: Ik ben een uniek individu.*
Original: I would sacrifice an activity that I enjoy very much if my family did not approve of it. *Dutch Translation: Ik zou een activiteit die ik erg leuk vind opgeven als mijn familie het niet goedkeurt.*
Original: Without competition it is not possible to have a good society. *Dutch Translation: Zonder concurrentie is het niet mogelijk een goede samenleving te hebben.*
Original: I feel good when I cooperate with others. *Dutch Translation: Ik voel me prettig als ik met anderen samenwerk.*

Reference: Sivadas et al.,

Appendix C

Beliefs about collaborative learning assessment constructed items with Dutch translation and Cronbachs alpha per sub-scale

Beliefs about collaborative learning assessment	
	Cronbachs Alpha
Sub-scale: Beliefs about collaborative learning cognitive assessment	**0.19**
Question in English: Collaborative learning allows me to improve my cognitive skills. *Dutch Translation: Samenwerkend leren stelt me in staat mijn cognitieve vaardigheden te verbeteren.*	
Question in English: Collaborative learning is more of a social skill than a cognitive skill. *Dutch Translation: Samenwerkend leren is meer een sociale vaardigheid dan een cognitieve vaardigheid.*	
Sub-scale: Beliefs about collaborative learning social assessment	**0.34**
Question in English: Collaborative learning allows me to improve my social skills. *Dutch Translation: Samenwerkend leren stelt me in staat mijn sociale vaardigheden te verbeteren.*	
Question in English: Collaborative learning is more of a cognitive skill than a social skill. *Dutch Translation: Samenwerkend leren is meer een cognitieve vaardigheid dan een sociale vaardigheid.*	

Appendix D
Vignnette types with Dutch Translations

Vignette 1: Diverse group x Cognitive assessment criteria (DC)
English: Read the following scenario below. A new course you have been looking forward to has started in the new academic block. In order to pass this course you will work on a group assignment in which one collaborative report has to be produced, and all group members will be given the same grade. The lecturer has provided an assessment document with rubrics to help guide you and your group members in working together as well as to clearly understand the requirements for grading. Apart from criteria for the group report there is a rubric which emphasises criteria for the cognitive skills needed for working as a group. The cognitive skills aspect highlights the way in which your group managed the assignment, how you regulated tasks, and built knowledge, etc and emphasises the problem solving aspect of the assignment. The group you are allocated to consists of a group of five individuals (including yourself) from different cultural/ethnic backgrounds diverse individuals (e.g. mix of Dutch, Indian, East European and African from South of the Sahara). Please answer the following questions in the context of this scenario. **Dutch Translation:** *Lees het volgende scenario.* *In de nieuwe periode is een cursus van start gegaan waarnaar je hebt uitgekeken. Om te slagen voor deze cursus werken jullie aan een groepsopdracht waarbij één gezamenlijk verslag moet worden gemaakt. Alle groepsleden krijgen hetzelfde cijfer. De docent heeft ook een beoordelingsinstrument met rubrieken aan de groep gegeven om jou en de groepsleden te helpen bij het samenwerken en bij het begrijpen van de eisen van de beoordeling. Naast criteria voor het verslag is er een rubriek die de nadruk legt op criteria voor cognitieve vaardigheden die nodig zijn om in een groep te werken. Het aspect cognitieve vaardigheden benadrukt de manier waarop jullie groep de opdracht heeft aangepakt, hoe jullie taken hebben verdeeld, kennis hebben opgebouwd, enz. en legt de nadruk op het probleemoplossende aspect van de opdracht. De groep waarin je bent ingedeeld bestaat uit een groep van vijf personen (inclusief jezelf) met verschillende culturele/etnische achtergronden (bijv. een mix van Nederlands, Indiaas, Oost Europees, en Afrikaans van ten zuiden van de Sahara).* *Beantwoord de volgende vragen in de context van dit scenario.*

Vignette 2: Diverse group x social assessment criteria (DS)
English: Read the following scenario below. A new course you have been looking forward to has started in the new academic block. In order to pass this course you will work on a group assignment in which one collaborative report has to be produced, and all group members will be given the same grade. The lecturer also provides a rubric that can help guide you and your group members in working together as well as understand the requirements for grading. Apart from criteria for the group report the rubric has a section which emphasises criteria for social skills. The social skills highlight the way in which your group worked, the participation of group members, the perspective taking of individuals, the social regulation in the group, and the collaborative aspect of the assignment. The group you are allocated to consists of a group of five individuals (including yourself) from different cultural/ethnic backgrounds (e.g. mix of Dutch, Indian, East European and African from South of the Sahara). Please answer the following questions in the context of this scenario. **Dutch Translation:** *Lees het volgende scenario.* *In de nieuwe periode is een nieuwe cursus van start gegaan waarnaar je hebt uitgekeken. Om te slagen voor dit vak werken jullie aan een groepsopdracht waarbij één gezamenlijk verslag moet worden gemaakt. Alle groepsleden krijgen hetzelfde cijfer. De docent geeft ook een rubriek die jou en je groepsleden kan helpen bij de samenwerking en bij het begrijpen van de eisen voor de beoordeling. Naast criteria voor het verslag bevat de rubriek ook een sectie die de nadruk legt op criteria voor sociale vaardigheden. De sociale vaardigheden benadrukken onder andere de manier waarop je groep heeft gewerkt, de participatie van groepsleden, het innemen van perspectieven door individuen, de sociale regulatie in de groep en het samenwerkingsaspect van de opdracht. De groep waarin je bent ingedeeld bestaat uit een groep van vijf personen (inclusief jezelf) met verschillende culturele/etnische achtergronden (bijv. een mix van Nederlands, Indiaas, Oost Europees, en Afrikaans van ten zuiden van de Sahara).* *Beantwoord de volgende vragen in de context van dit scenario.*

Vignette 3: non-diverse group x cognitive assessment criteria (MC)
English: Read the following scenario below. A new course you have been looking forward to has started in the new academic block. In order to pass this course you will work on a group assignment in which one collaborative report has to be produced, and all group members will be given the same grade. The lecturer has provided an assessment document with rubrics to help guide you and your group members in working together as well as to clearly understand the requirements for grading. Apart from criteria for the group report there is a rubric which emphasises criteria for the cognitive skills needed for working as a group. The cognitive skills aspect highlights the way in which your group managed the assignment, how you regulated tasks, and built knowledge, etc and emphasises the problem solving aspect of the assignment. The group you are allocated to consists of a group of five individuals (including yourself) who come from a similar cultural/ethnic background (e.g. ${q://QID2/ChoiceGroup/SelectedChoices}, ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry}). Please answer the following questions in the context of this scenario. **Dutch Translation:** *Lees het volgende scenario.* *In de nieuwe periode is een cursus van start gegaan waarnaar je hebt uitgekeken. Om te slagen voor deze cursus werken jullie aan een groepsopdracht waarbij één gezamenlijk verslag moet worden gemaakt. Alle groepsleden krijgen hetzelfde cijfer. De docent heeft ook een beoordelingsinstrument met rubrieken aan de groep gegeven om jou en de groepsleden te helpen bij het samenwerken en bij het begrijpen van de eisen van de beoordeling. Naast criteria voor het verslag is er een rubriek die de nadruk legt op criteria voor cognitieve vaardigheden die nodig zijn om in een groep te werken. Het aspect cognitieve vaardigheden benadrukt de manier waarop jullie groep de opdracht heeft aangepakt, hoe jullie taken hebben verdeeld, kennis hebben opgebouwd, enz. en legt de nadruk op het probleemoplossende aspect van de opdracht. De groep waarin je bent ingedeeld bestaat uit een groep van vijf personen (inclusief jezelf)die een vergelijkbare culturele/etnische achtergrond hebben als jij (bijv. ${q://QID2/ChoiceGroup/SelectedChoices}, ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry}).* *Beantwoord de volgende vragen in de context van dit scenario.*
Note: 1) ${q://QID2/ChoiceGroup/SelectedChoices} is the function for participants self-identified nationality

2) ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry} is the function for participants self-identified ethnicity

Vignette 4: non-diverse group x social assessment criteria (MS)

English:

Read the following scenario below.

A new course you have been looking forward too has started in the new academic block. In order to pass this course you will work on a group assignment in which one collaborative report has to be produced, and all group members will be given the same grade. The lecturer also provides a rubric that can help guide you and your group members in working together as well as understand the requirements for grading. Apart from criteria for the group report the rubric has a section which emphasises criteria for social skills. The social skills highlight the way in which your group worked, the participation of group members, the perspective taking of individuals, the social regulation in the group, and the collaborative aspect of the assignment. The group you are allocated to consists of a group of five individuals (including yourself) who come from a similar cultural/ethnic background (e.g., ${q://QID2/ChoiceGroup/SelectedChoices}, ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry}).

Please answer the following questions in the context of this scenario.

Dutch Translation:

Lees het volgende scenario.

In de nieuwe periode is een nieuwe cursus van start gegaan waarnaar je hebt uitgekeken. Om te slagen voor dit vak werken jullie aan een groepsopdracht waarbij één gezamenlijk verslag moet worden gemaakt. Alle groepsleden krijgen hetzelfde cijfer. De docent geeft ook een rubriek die jou en je groepsleden kan helpen bij de samenwerking en bij het begrijpen van de eisen voor de beoordeling. Naast criteria voor het verslag bevat de rubriek ook een sectie die de nadruk legt op criteria voor sociale vaardigheden. De sociale vaardigheden benadrukken onder andere de manier waarop je groep heeft gewerkt, de participatie van groepsleden, het innemen van perspectieven door individuen, de sociale regulatie in de groep en het samenwerkingsaspect van de opdracht. De groep waarin je bent ingedeeld bestaat uit een groep van vijf individuen (inclusief jezelf) die een vergelijkbare culturele/etnische achtergrond hebben als jij (bv. ${q://QID2/ChoiceGroup/SelectedChoices}, ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry}).

Beantwoord de volgende vragen in de context van dit scenario.

Note:

1) ${q://QID2/ChoiceGroup/SelectedChoices} is the function for participants self-identified nationality
2) ${q://QID5/ChoiceGroup/SelectedChoicesTextEntry} is the function for participants self-identified ethnicity

Appendix E

Preference for assessment criteria constructed items with Cronbachs alpha per sub-scale

Preference for assessment criteria	
	Cronbachs Alpha
Sub-scale: Preference for social assessment criteria	**0.80**
Theme: Participation English question: ... encourages you to actively participate *Dutch Translation: ...je aanmoedigt om actief deel te nemen*	
Theme: Participation English question: ... promotes meaningful interactions with other group members *Dutch Translation: ... zinvolle interacties met andere groepsleden bevordert*	
Theme: Participation English question: ... develops your intercultural skills *Dutch Translation: ... je interculturele vaardigheden ontwikkelt*	
Theme: Perspective taking English question: ... improves your communication skills *Dutch Translation: ... je communicatie vaardigheden verbetert*	
Theme: Perspective taking English question: ... encourages perspective taking *Dutch Translation: ...aanmoedigt tot perspectief nemen*	
Theme: Perspective taking English question: ... teaches you how to adapt to different circumstances and situations *Dutch Translation: ... leert hoe je je moet aanpassen aan verschillende omstandigheden en situaties*	
Theme: Social Regulation English question: ... calls on your ability to negotiate differences *Dutch Translation: ... een beroep doet op je vermogen om te onderhandelen over verschillen*	
Theme: Social Regulation English question: ... highlights the need to take responsibility of group work *Dutch Translation: ... de noodzaak benadrukt om verantwoordelijkheid te nemen voor groepswerk*	
Sub-scale: Preference for cognitive assessment criteria	**0.83**
Theme: Task Regulation English question: ... improves your group task management skills	

Dutch Translation: ...je vaardigheid in het managen van *groepstaken verbetert*	
Theme: Task Regulation English question: ... provides the opportunity to use your problem solving skills *Dutch Translation: ... je de mogelijkheid* geeft *om je probleemoplossende vaardigheden te gebruiken*	
Theme: Task Regulation English question: ... strengthens your skills to analyse situations *Dutch Translation: ... je vaardigheden versterkt om een situatie te analyseren*	
Theme: Task Regulation English question: ... strengthens your skill to manage resources available to the group *Dutch Translation: ...je vaardigheid versterkt om hulpmiddelen voor de groep te beheren*	
Theme: Task Regulation English question: ... strengthens your skill to set group and individual goals *Dutch Translation: ... je vaardigheid versterkt om groeps- en individuele doelen te stellen*	
Theme: Knowledge Building English question: ... improves your knowledge building on the topic *Dutch Translation: ... je kennisontwikkeling over het onderwerp verbetert*	
Theme: Knowledge Building English question: ... develops your ability to connect information *Dutch Translation: ... je vermogen ontwikkelt om informatie in een samenhang te plaatsen*	
Theme: Knowledge Building English question: ... develops your ability to monitor the set group outcomes *Dutch Translation: ... je vermogen ontwikkelt om de voortgang naar de beoogde groepsuitkomsten in het oog te houden*	
Theme: Knowledge Building English question: ... encourages you to reflect on the group process *Dutch Translation: ... moedigt je aan tot reflectie op het groepsproces*	