How original can AI be? The influence of authorship information on originality of music

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Abstract

This study examined the relationship between authorship information with regards to the use of artificial intelligence (AI) in process of composition and perceived originality, and whether this relationship was moderated by engagement with music in daily life. Participants (N = 80) were randomly assigned to one of three conditions for authorship information, from fully human, hybrid, and fully AI. They then listened to the same song created using an AI called Suno, after which they were asked several questions about their perception of the song. Contrary to earlier research, there were no significant results found that states that listeners rate the same piece of music lower if it was labelled to be created by AI. Active engagement with music in daily life functions as a moderator in the hybrid condition, but only for those low in musical engagement – they rate it as less original. Findings indicate that people high in musical engagement rate an AI generated piece as less original than people in low musical engagement, regardless of authorship information. Further research should focus on how authorship information regarding AI differs in different genres, as well as focussing on the roles of other interpersonal characteristics influencing the AI composer bias

Keywords: Artificial intelligence, music, composer bias, originality, engagement with music

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.

How original can AI be? The influence of authorship information on originality of music

Music is a form of arts that has continued to develop in many ways over the past centuries. From Beethoven to EDM, and from jazz to heavy metal, music has come in all shapes and sizes. In recent years, the creation of music has also seen a very notable addition, namely the creation of music by Artificial Intelligence (AI), instead of musical creation just by human beings (Bludov, 2024).

With platforms like Udio and Suno, anyone can create a piece of music by simply typing in a few prompts about how the song should sound like. This relatively new way to create music brings certain implications to the musical scene, an example being that musicians are using AI to help them compose and perform new pieces of music (Hong et al., (2022). This means that our interaction with AI-generated music could become a part of our everyday lives (Zulic, 2019).

But what is known about the human perception of AI generated music? When listeners are asked to evaluate the performance of AI generated music versus human generated music, they rate AI-performed music as lower in quality, linking, valence and engagement compared to the same piece labelled as performed by a human (Ansani et al, 2025). When listeners are asked to evaluate the quality of an AI generated composition, Shank et al., (2023) have found evidence for an AI composer bias. This composer bias against AI means that listeners will like a piece of music less if they were made to believe that it was composed by AI instead of a human being. This suggests that the authorship information of a piece of music given to a listener affects how the listener evaluates it, regardless of the contents of the piece itself. A form of musical evaluation can be how original a piece of music is perceived to be. This could be a good predictor of the overall liking of a piece of music, because study has shown that more original composers tend to

have more success with their audiences, as well as being more influential on other musicians (Borowiecki & Mauri, 2023). Listeners of music also vary in the degree to which they listen to music, which can be described as active engagement with music in daily life. We speculate that this also has an influence to the degree with which an individual experiences the Ai composer bias. In this study, we investigate the effects of music authorship information on the perceived originality of the music, and the extent to which this is moderated by engagement with music in daily life.

Perceived originality

A variable regarding the experience of a piece of music is the perceived originality that a person has when hearing a piece of music. In this research, the perceived originality of music refers to one's judgement of a piece of music as different/unique, or as something they have not heard before. Perceived originality of music can play a role in whether we like a piece of music or not. This shows in earlier research, where originality is seen as a crucial part of creativity (Richardson et al., 2016). Objectively, we feel a piece of music is very unoriginal and we have heard something very similar to it many times before, we might not be interested in the music and dislike it. Hass et al., (2015) examined the relationship between the originality of a piece of music and how famous it is. The main way they used to determine the originality of a melody was by computing the so called "information content". This information content tells us information about the probability of the note sequence of a melody. An interesting finding from this study, is that there seems to be a level of probability for the note sequence where the melody is the most famous. It seems that people tend to like original pieces of music, but only when there is a sense of predictability. Another factor that can influence perceived originality is authorship information.

Authorship information

Authorship information in the context of our study is the information known to the

listener about the author of the musical piece. Anything that the listener knows about the author can be seen as authorship information. It is shown that authorship information has an influence in how creative humans perceive a piece of art to be. For example, thinking that a painting was created by AI made a piece less aesthetically appealing than if it were thought to be created by a human artist (Kirk et al., 2009) An effect that authorship information relating to the involvement of AI can have is that on emotional engagement. Even though the level of enjoyment for an AI generated piece of music is the same as the level of enjoyment for a human generated piece of music, humans rate a piece of music lower in terms of emotional engagement and empathy when they think that the piece is made by AI (White et al. 2015). The authors state that this difference in emotional engagement and empathy could be because humans do not allow themselves to feel an emotional affection with the song when they know that the song was not made by a human being. These findings support the existence of an AI-bias when it comes to rating a piece of music. When we look at the relationship between authorship information and perceived originality of music, we investigate a relationship that has not been examined often in academic journals. However, we already know a few things. For instance, Shank et al., (2023) found that when people were made to believe that they were listening to AI-generated music, they rated that piece of music as being of lower quality than if it were a human generated piece of music. In this study, the authorship information that was given to participants focussed on the degree with which AI was involved in the process of making the song. We predict that a piece of music perceived to generated by an AI, will negatively affect the perceived originality of the piece of music. However, we are under the impression that the effect of authorship information on perceived originality of a piece of music is moderated by another variable; engagement with music in daily life

Engagement with music in daily life

Engagement with music in daily life refers to the time and effort someone puts in

engaging with musical content on an average day. Examples of active engagement with music are listening to music, reading musical articles, or playing a musical instrument. In a study conducted by Tigre Moura & Maw, C. (2021), normal music listeners and musical professionals both took the same tests regarding their opinions of AI-generated versus human generated music. An interesting find from this, was that the group of normal music listeners were much more acceptant and positive of the AI music than the music professionals. Based on this, we assume that for people who score low on engagement with music in daily life, authorship information will only slightly affect the perceived originality of music. However, for people who score high on engagement with music in daily life, we hypothesize that when music is labelled as AI-generated the perceived originality of the music piece will be lower than if it were human generated.

The present research

The resent research will thus focus on the relationship between authorship information and perceived originality of music, and how this is moderated by engagement with music in daily life. As mentioned earlier, we expect to see music labelled as AI-generated perceived as less original than the same music labelled as human generated, and that this effect will be greater for people who score high on engagement with music in daily life. We hypothesize this because a higher engagement with music in daily life should lead to more musical exposure, meaning that it would be more difficult to perceive a piece of music as original. We think our present study is relevant in the following ways. First, very little research has been done on how engagement with music contributes to the relationship of authorship information and perceived originality of music. Second, previous research has mostly focussed on only an AI versus a non-AI condition. In the current research, we will add a condition where we state that music was created by both a human and an AI, thus adding another dimension to the creation of human/AI-generated music.

Method

Participants & Design

Our study consisted of 155 cases. Of these 155 cases, 45 were removed in the first step of our step-by-step elimination approach due to their failure to complete the study. Participation was determined to be incomplete when a participant did not fill out the seriousness check at the end of the study. An important note is that only 12 of these participants made it to the manipulation part of our study, meaning that most of them never answered any items at all. Of these 45, there was only one participant who filled out any items regarding our dependent variable. Othe seriousness check, the remaining 110 participants all indicated that they had been participating seriously. This meant that there was no need for additional removal after the seriousness check. Our next step was to remove another 27 participants because of their failure to pass the attention check, which asked participants to recall information they received earlier in the study. At the end of the study three participants stated that they did not want their data to be used, which left us with 80 participants. Of these 80 participants, 46 were female and 34 were male. All our participants were between 18 and 75 years old (M = 31.41, SD = 14.49) Participants were recruited by using the personal networks of the researchers, or via WhatsApp groups for psychology students at the RUG.

Our study made use of a between-subjects experimental design. The independent variable, authorship information, had three levels, varying in the degree of AI used to create the song (fully human, hybrid, fully AI). Our design was experimental, so participants were randomly assigned to one of the levels of our independent variable. Our dependent variable was perceived originality, and the moderator was active engagement with music in daily life. This study was a part of a bigger project, where additional variables were examined (For all

variables, see Table 1 in Appendix A). This study has not focussed on or discussed any of these additional variables.

Materials And Procedure

The study was conducted using Qualtrics. Participants were informed that they were participating in a study about the ways in which music is experienced and evaluated by humans and AI technology.

Engagement with music in daily life.

After this, participants filled out nine questions about our moderator: active engagement with music in daily life ($\alpha = 0.88$) Engagement with music in daily life refers to the time and effort an individual puts in engaging with music in their daily life. We measured active engagement using the nine items in the subscale active engagement from The Goldsmith Musical Sophistication Index (Müllensiefen et al., 2014) . The items were measured on a 7-point scale, where participants were asked about the degree to which they agreed with a statement such as "*Music is kind of like an addiction for me – I couldn't live without it*". Answer options ranged from "*Strongly disagree*" to "*Strongly agree*".

Authorship information manipulation.

Each participant was randomly placed into one of the three conditions. Each condition was given different information about the authorship of the song they were about to listen to. For the first condition, participants were told that the musical piece they were about to hear was written, composed, and produced entirely by Victoria Bellamy, a British singer-songwriter. For the second condition, participants were given the information that Victoria Bellamy collaborates with AI to make her music; she writes the lyrics while AI composes and produces the music. For the third and final condition, participants were told that the music that they were about to hear was performed by Victoria Bellamy, a virtual musician created entirely generated by the AI platform Suno, without any human intervention. We decided on

these three conditions because a hybrid condition would give more insight into the degree of AI-bias when there is a collaboration between human and AI, as opposed to two conditions that are fully human or fully AI. The song itself can be described as a very standard pop song sung by a female vocalist, who in all three conditions is named Vicotria Bellamy. We chose this genre because it is accessible and popular in modern mainstream music. The production was very standard, and the lyrics were about the ending of a relationship, another common theme in popular music. In all conditions, the song was performed by "Victoria Bellamy". The authorship information in the human condition was that Victoria composed the song fully by herself. The authorship information in the hybrid condition was that Victoria worked with AI to create her songs. The authorship information in the fully AI condition was that Victoria was a persona fully created by AI. The song lasted 90 seconds in total although participants were free to listen to the song multiple times. Participants could only move on to the next page of the study after 90 seconds had passed since opening the current page, to ensure that participants took enough time to listen to the song.

Perceived Originality.

Perceived originality was our dependent variable, measured after participants were finished listening to the song. We measured it by using three items from the novelty subscale of the Creative Product Semantic Scale ($\alpha = 0.79$) (O'Quin, & Besemer, S. P. (2006). The items were again measured on a 7-point scale, where participants were asked about the degree to which they agreed with a statement such as "*This song sounds fresh and original*". Answer options ranged from "*Strongly disagree*" to "*Strongly agree*".

Attention Check.

After these questions followed a single multiple-choice question where participants had to recall the information they were given at the start of the study regarding the creator of the song. If their answer did not match the authorship information they were given, they

failed the attention check. The attention check was implemented to ensure participants were concentrated on the study. We also asked participants about their demographics and if they were taking the study seriously and closed with a debriefing to reveal the true goal of the study. After debriefing, participants had the opportunity to withdraw their data from our research.

Results

Statistical analysis was conducted using SPSS 30, while also making use of the PROCESS macro (Hayes, 2013). A preliminary analysis revealed that statistical assumptions were not violated.

To test our hypotheses that music that is labelled as AI-generated would be perceived as less original than the same piece that is labelled as human-generated and to test whether this effect would be stronger for individuals who score higher on engagement with music in daily life, we ran an analysis where the manipulation of authorship information was the independent variable, perceived originality was the dependent variable and active engagement with music was the moderator.

Main Effects

Contrary to our first hypothesis, the manipulation of authorship information did not have a significant effect on perceived originality. For the human-generated condition (M = 2.56, SD = 1.16*)* participants rated the piece of music slightly higher than participants in the hybrid (M = 2.03, SD = 0.81) and full AI condition (M = 2.08, SD = 1.03). However, we found that this effect was not significant for both the hybrid ($t(74) = -1.59$, $p = 0.12$) and the full AI ($t(74) = -1.10$, $p = 0.27$) conditions.

Moderator Effects

Engagement with music in daily life served as a moderator in the relationship between the hybrid condition and the perceived originality ($t(74) = 2.42$, $p = 0.02$), but it did not serve

as a moderator in the relationship between the full AI condition and the perceived originality ($t(74) = 1.82$, $p = 0.07$). This is contrary to our moderator hypothesis. We find a significant relationship between active engagement with music in daily life and perceived originality, but only for participants who score one standard deviation lower than the mean on engagement with music in daily life in the hybrid condition ($t(74) = -3.08$, $p = 0.03$). For the fully AI condition, we are just above the cut off score for a significant result ($t(74) = -1.99$, $p = 0.05$). We also find a significant main effect of the moderator ($t(74) = -3.57$, $p = < 0.01$). This means that the higher people score on active engagement with music in daily life, the lower they rate the perceived originality of the song.

Discussion

Our first hypothesis was that music labelled as AI-generated will be perceived as less original than the same piece of music that is labelled as human-generated. Our results do not support this hypothesis, which means that for both the hybrid and the fully AI condition we did not find a significant difference with the fully human condition. Our second hypothesis was that the negative effect of AI authorship on perceived originality would be stronger for people who score high on active engagement with music in daily life. We did not find a significant main effect of authorship information, our dependent variable, on perceived originality, our independent variable.

When it comes to our main hypothesis, although we did not find an effect that supports the AI-bias as found by Shank et al., (2023) we did find a pattern that indicates that AI-generated content was perceived as less original, this effect just lacked significance for both the hybrid condition ($p = 0.12$) and the fully-AI condition ($p = 0.27$). We also found that authorship information does not serve as a moderator for those high in active engagement with music in daily life. Instead, we found that it only serves as a moderator for those low in active engagement in music – they rate it lower.

Main effects

When we examine why we did not find a significant effect between authorship information and perceived originality, there are two possible explanations for this finding. The first one is an obvious explanation for this finding: lack of statistical power of the present research. For our analysis we had access to 80 usable cases, which for a research model like this is less than we would like it to be. This is a limitation that can perhaps explain why we don't reach the threshold for statistical significance. The second explanation could be the song that they hear. Since the musical piece participants heard was quite generic, perceived originality was already low for the human condition (M = 2.56), which could mean that perceived originality was always going to be low, even if a human made it. This would mean that AI bias would be extremely hard to detect, since there would almost be no difference between the perceived originality of the conditions.

Moderator effects

When examining the effects of our moderator active engagement in music, we find that the effect is the opposite of what we had expected. For the hybrid condition, we find a significant effect that engagement with music in daily life functions as a moderator between authorship information and perceived originality. We find a similar effect for the fully AI condition, however this is slightly above the threshold for statistical significance. For this issue, we can formulate two possible explanations. A very plausible explanation is that low engagement with music makes a person more susceptible to labels (Bellaiche et al., 2023). As they must rely more on contextual factors than people who score higher on engagement with music in daily life. The second one could again be the lack of statistical power, as explained earlier. As said earlier, we find a significant influence of active engagement with music in daily life and perceived originality but only for people who score one standard deviation below the mean on active engagement in music. This has two possible explanations. The first

could be that people with lower levels of active engagement in music are more susceptible to authorship information. They could lack knowledge or reference material to hear how original a piece of music is, so they take the authorship information more into consideration than participants who score higher on active engagement with music in daily life. The second explanation could be that people with low engagement with music in daily life were very excited to listen to an AI-generated piece of music and were let down when they heard a generic pop song. This could mean that they rated the musical piece as less original because they expected more.

Theoretical implications

Although we do not find a significant effect for the AI composer bias, we find a pattern that suggest that this effect could still very well be in place. Since Shank et al., (2023) found this effect just two years prior to this research, it is unlikely that the view on AI music has led to the extinction of AI composer bias. Our research also implies that concepts like originality are very susceptible to contextual factors like labels, in this case authorship information.

Practical implications

This study has several important practical implications for both musicians and developers of music related AI systems. The (not significant) pattern of AI bias could still be a problem to the acceptance of AI-generated music. If this bias is still in place musicians will doubt whether or not to make use of AI tools, since the bias could lead to a lower evaluation regardless of the content of the music. And if musicians use AI tools, they might be inclined not to credit AI for the song, since it might lead to a musician being seen as less creative.

Limitations

Our study has three main limitations. First, our study only used a single musical

example created by AI. This means that our findings are based on only one genre, namely pop music. We chose a pop music song because it is the most accessible genre for participants, however this could be a problem for the generalizability of our findings. A solution for this problem would be to let participants listen to multiple musical pieces in one experiment, that all have different genres. The second limitation is the continuous development of AI and the potential changing attitude towards AI. As platforms like Suno begin to develop newer and better versions of their software, it is likely that AI-generated music gets better and to some degree indistinguishable from human-generated music. If AI-generated music gets better and more familiar over time, the attitude towards this music can also change. A solution to this problem is to conduct a similar study when there has been a substantial amount of improvement in AI-music and familiarity towards it. Our final limitation lies in our participant sample. Our participants consisted primarily of young adults, all from western cultures. It is safe to say that most of our participants have some basic knowledge about AI to some degree or another. If we were to have participants who do not originate from western cultures for example, they might have a completely different outlook on AI or even not know what AI is at all. This means that our research has a low generalizability across different cultures. A possible solution would be to conduct this research amongst members from different cultures, to examine whether or not AI bias is a phenomenon stable across cultures.

Further research

Further research has two rather obvious directions, and a rather adventurous one. First, it can focus on how generalizable and reliable AI influences perceived originality across different genres. By doing this, we can create a clear insight in whether AI influence is different per genre. For instance, we might find a big influence with EDM samples, but we might not find any influence at all when using classical samples. A line of thought behind this

is that AI is heavily associated with computers, just like EDM music. A piano for instance, is much more associated with a human pianist. This could lead to genre-differences in the magnitude of the AI composer bias. The second one would be to conduct longitudinal studies, in which we can observe the change in attitude of participants towards AI music. Another direction could be to conduct more research in the degree of AI involved that provokes a change in perceived originality. For instance, hybrid conditions can be manipulated in many different ways, meaning that humans can also react to these conditions in many different ways. This can give us a deeper understanding of what components specifically trigger a possible change in perceived originality, and which do not.

Conclusion

This research was conducted to examine the relationship of authorship information regarding the involvement of artificial intelligence in the creation process and perceived originality, and how this is moderated by active engagement with music in daily life. We found that AI-generated music was rated as less original, although these differences were not of statistical significance. We also found that active engagement with music in daily life only reduced perceived originality when a participant scored low on active engagement.

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Appendix:

A.

Table 1: Other research models

Dependent variable	Moderators	Independent variable
Authorship information	Openness to experience	Emotional affect of music
Authorship information	Bias against AI	Emotional liking
Authorship information	Musical expertise	Perceived creativity
Authorship information	Importance of lyrics	Appreciation of music
Authorship information	Openness to experience	Evaluation of music