

A Study of the Mechanisms of the Virtual Sublime in Virtual Reality: Rhythms, Emotions, and the Philosophical Foundations of Virtual Sublime Experience

ABSTRACT

This research examines the notion of the “virtual sublime” within virtual reality and seeks to understand how sublime experiences are shaped, generated, and triggered in digitally constructed worlds. By tracing the development of sublime theory in contemporary discourse and analysing its manifestations in games and VR environments, the study argues that the virtual sublime cannot be reduced to spatial scale or visual form alone. Instead, it arises from a shifting relational field in which environmental rhythms, bodily rhythms, and emotional rhythms converge.

To make sense of this structure, the thesis develops a framework grounded in ontology, epistemology, and axiology. It views virtual worlds as experiential constructs formed jointly through technological systems, design intentions, and user perception. It proposes that rhythm, emotion, and embodied engagement offer crucial interpretive pathways for understanding sublime responses in VR. Furthermore, the study highlights the unique aesthetic, cultural, and experiential significance that the virtual sublime holds within contemporary discourse.

In the practical component, several experimental VR environments were created to test how different inducing factors and rhythmic arrangements shape user

experience. A mixed methods approach, drawing on physiological data, behavioural traces, questionnaires, and interviews, allows for a layered analysis of the user's responses. The thesis concludes with reflections on reliability, validity, potential biases, positionality, and ethical considerations to ensure the integrity of the research. Overall, the study aims to open new directions for theorising the virtual sublime and for informing the design of immersive experience.

Introduction

Having worked in the virtual reality industry for three years, I often found myself repeatedly asking a similar question while creating virtual environments: how can these spaces carry deeper meaning, and how can the experience they offer feel more valuable for users? At the same time, with roughly two decades of gaming experience, I have gradually learned to notice the subtle differences in how games construct space, aesthetics, and interaction, and how these elements shape the player's emotional and experiential responses. These reflections all come from my long-standing fascination with virtual experience itself. I want to understand what such experiences mean for individuals and for society, what kinds of possibilities they may open up, and what new knowledge we might gain from them. From my position as both a creator and a researcher, virtual experience already holds intrinsic significance, and therefore it deserves to be examined carefully.

In many of my past encounters with virtual worlds, both in games and VR, I have been struck by supernatural landscapes, overwhelming architectural scales, and speculative technological settings that exceed anything in the real world. These environments often triggered an intense bodily reaction: goosebumps, along with feelings of awe, fear, or even shock. Such emotions usually arise from a sense of reverence toward nature, the unknown, or advanced technology, while also making me aware of my own cognitive limits and smallness. Experiences like these closely resemble the philosophical idea of the sublime, and can even be seen as a concrete expression of that concept in virtual space. The sublime, which can be traced back to ancient Greece and later flourished during the British Romantic period, was developed further by Edmund Burke and Immanuel Kant. They described it as both an emotional and bodily response and also an experience in which the mind and reason are pushed beyond their limits (Burke, 2009; Kant, 1987). Over time, the theory of the sublime shifted from rhetoric, to natural aesthetics, and eventually toward sensory and emotional experience, marking a move from external scenes to internal experiential structures.

This shift toward emotional and experiential aspects has made the sublime highly relevant in research on video games and VR user experience. The question of how virtual environments generate the sublime, and how players come to feel it, has been widely discussed in game studies. The terms virtual sublime and digital sublime have appeared in some scholarship, though they mostly concern traditional screen-based games. Research on the sublime

specifically within VR remains limited, a gap noted by several scholars (Spokes, 2020; Kim, 2023). Considering VR's unique affordances, stronger immersion, embodied control, and an enclosed sense of spatial presence, there is clear value in exploring the virtual sublime through VR more directly.

After reviewing the existing literature on the virtual or digital sublime, I found that most work focuses on theoretical frameworks, while discussions on the mechanisms that generate sublime experiences and on users' actual responses are relatively rare. This suggests that research is needed to examine how the virtual sublime is structured, what triggers it, and how it unfolds in user experience, especially within VR.

Another gap in existing studies is the lack of attention to rhythm. Although rhythm plays an important role in shaping experience, atmosphere, spatial unfolding, and emotional movement, it is seldom used as a lens to analyse the virtual sublime. Drawing on Lefebvre's rhythmanalysis and considering the qualities of VR, I propose that the virtual sublime may not occur in a single moment. Instead, it may emerge through a dynamic process shaped by interactions among spatial rhythms, bodily rhythms, and emotional rhythms. VR's immersive nature strengthens the conditions for such rhythm-based sublime experiences. For these reasons, this study examines the structure and mechanisms of the virtual sublime from the viewpoint of rhythm and also clarifies the ontological, epistemological, and axiological foundations of the research.

2. Philosophical Foundation

2.1 Ontology

Since this study focuses on how the virtual sublime is formed in virtual reality and how users experience it inside virtual environments, several philosophical questions naturally arise. These include how virtual worlds exist, how users perceive and form knowledge within them, and what emotional experiences such as the sublime actually mean and value. For this reason, I outline the philosophical position of the study and build a framework across ontology, epistemology, and axiology. In simple terms, this means explaining what I consider the nature of virtual worlds or virtual experience to be, how knowledge is generated through virtual environments and creative practice, and what values guide both the research and the creative works I produce.

From an ontological perspective, this research treats the virtual world as a “virtualised experiential existence.” A virtual world is not a physical object in the traditional sense; instead, it is formed by digital technologies, spatial arrangements, atmosphere design, interaction systems, and the user’s perception. Its existence relies on both the designer who constructs it and the user who enters and perceives it. In other words, a virtual world can be carefully designed, but it only becomes meaningful when someone actually steps into it and experiences it. Without a user, it simply does not achieve its full mode of existence.

Following this view, the virtual sublime is understood not as a fixed property of objects nor as something entirely subjective. Rather, it is a “relational experiential structure.” On one side, features of the virtual environment, such as large scale, boundlessness, depth, or partial unknowability, create the basic conditions for a sublime response. On the other side, these conditions alone cannot produce the sublime. The user must engage through bodily perception, emotional shifts, attention flow, and the rhythms of moving through space. The virtual sublime, therefore, is not static; it develops from interactions between environmental qualities and the user's experiential process. It emerges through environmental, bodily, and emotional rhythms working together.

Marie-Laure Ryan's work on narrative immersion helps explain this process. She points out that users do not grasp a virtual space instantly. Instead, they perceive it gradually while moving through it. Even if the virtual environment is not designed as a story, many of its elements still suggest a world with a particular background, and users slowly piece together this background through exploration (Ryan, 2018).

Lefebvre's rhythm theory also supports this ontological understanding. For Lefebvre, rhythm appears where time, space, and energy meet, and it shows how experience develops between body and environment (Lefebvre, 2013). In VR, sublime experiences also reveal this rhythmic nature. The way the environment appears, changes in scale, shifts in lighting, and the structure of pathways form what we may call an environmental rhythm. Users, meanwhile,

create subjective rhythms through how they move, where they look, how quickly they walk, and which routes they choose. As a result, even when users enter the same virtual space, their experiences differ because their rhythms differ. This idea can also be seen in Hughes's work on open world games, where players share the same world but have very different experiences (Hughes, 2021). In this study, such differences are understood in relation to users' distinct exploratory rhythms.

Emotional and bodily rhythms also come from the user's own perception and cognitive responses. They can be understood as part of Lefebvre's idea of multiple rhythms. Sublime experiences often appear when rhythms align or when they break, clash, or suddenly shift. Situations such as sudden expansions of space, the appearance of a huge object, supernatural events, or dramatic changes in scale can cause perceptual overload and lead to a sublime response.

Modern digital technologies give virtual environments strong expressive power to create such situations. The immersive and embodied qualities of VR make interactions between different rhythms even stronger, allowing the virtual sublime to be analysed and also intentionally designed.

2.2 Epistemology

At the epistemological level, this study views both the creation of virtual environments and the user's experience within them as not only acts of design but also ways of generating knowledge. Emotion, rhythm, and embodied

perception are considered important sources of understanding. For this reason, the study makes use of rhythmanalysis, creative practice, and user experience as its main routes for producing knowledge.

First, because this is a practice-based project, the construction of virtual scenes is more than an artistic task. It also works as a process through which ideas are explored and certain structures become clearer. The knowledge of how the sublime may be built in VR comes from earlier research, examples from games, and the researcher's personal interpretation and reflection. These elements together shape the researcher's understanding of the virtual sublime, which is then expressed through the design of experimental VR environments.

Second, user experience is treated as another key way of knowing. Insights into the virtual sublime are drawn from the data and feedback users generate while exploring the scenes. The embodied nature of VR means that users participate in knowledge formation through their bodily perceptions, emotional reactions, and their own exploratory rhythms. Feelings such as awe, fear, pressure, or excitement indicate whether certain designs or rhythms are effective in triggering the sublime. In this sense, emotional and bodily rhythms can be regarded as a kind of "experiential knowledge," where emotion is not a passive outcome but a way of understanding how the virtual sublime works.

Lefebvre's rhythmanalysis also supports this view. Rhythm is not only a way of organising time and space; it also provides a frame for thinking about how experience unfolds. Because of this, rhythm becomes closely related to

understanding user experiences like the virtual sublime. The alignment, overlap, or tension among environmental, emotional, and bodily rhythms in virtual environments reveals how the sublime may emerge. Thus, rhythm is used as one of the main tools for analysing the structure of sublime experience in VR.

In short, this study adopts an epistemological position that brings together practice-led design and user experience: knowledge can appear during the creative process, but it can also arise through experiencing the virtual world; it comes from spatial structures but also from emotional rhythms, bodily engagement, and subjective interpretation. To understand the virtual sublime properly, the study argues that design, embodied perception, and rhythm must be considered together.

2.3 Axiology

From an axiological point of view, this study considers virtual experience to be meaningful in its own right, rather than something that should be viewed only as a form of entertainment. Virtual spaces allow people to gain experiences and forms of understanding that are difficult, or sometimes impossible, to access in the physical world. The ability to realise these possibilities in a relatively simple way already gives virtual experience significant value.

The sublime, which is the key concept of this research, also carries strong value. As theories of the sublime continue to develop, it has gradually become more than a philosophical idea. It now functions as an important way to evaluate user

experience. With the rise of digital media, the influence of the sublime can be found in games, animation, films, and even music, showing that it has already moved into creative practice and shapes how practitioners design their work. In virtual spaces, users' emotional and bodily responses become essential research objects, since the sublime cannot be separated from the person who experiences it. Although environmental features help create the conditions for the sublime, it still needs to be felt and interpreted by the user.

Regarding the mechanisms of the virtual sublime, this study sees it as a fundamentally rhythmic type of experience. Its value does not come only from visual impact but also from the emotional and cognitive shift created by its rhythm. When environmental rhythms, such as spatial expansion, scale change, or supernatural events, interact with the user's emotional and bodily rhythms, whether through alignment, tension, or sudden breaks, moments of the sublime may occur. For this reason, the value of the virtual sublime lies in how it can reshape the user's perception, trigger deeper emotional responses, increase the sense of presence, and offer forms of understanding and aesthetic experience that go beyond ordinary situations.

2.4 Research Value

From the perspective of research value, this study views the exploration of the virtual sublime as meaningful not only for aesthetics but also for cultural studies and experience-based research. In terms of aesthetic value, studying the virtual

sublime helps extend traditional sublime theory from its classical settings, such as nature, art, and literature, into today's digital environments. By focusing on the rhythmic mechanisms behind the virtual sublime, the research aims to show that the sublime can be treated as something that can be analysed, designed, and even tested in practice, rather than being understood only as an abstract philosophical idea. This provides a new theoretical foundation for virtual art and immersive experience design.

In virtual worlds, the feelings of the sublime that may appear when people encounter artificially created infinities, large scale structures, or technologically unfamiliar scenes reflect more than just emotional reactions. These responses show how digital culture carries a desire for forms of transcendence, and they also suggest that virtual reality and virtual spaces are becoming new types of cultural narrative media. By examining how the virtual sublime is structured, this study helps explain how virtual environments contribute to shaping contemporary emotional patterns and ways of imagining.

Finally, this study reflects the researcher's own value position and experiential background. It emphasises the cognitive importance of emotion, embodiment, and rhythm in virtual experience, and argues that experience should not be treated as something secondary or purely subjective. Instead, it is one of the main ways through which virtual worlds can be understood. With the researcher acting both as creator and participant, virtual environments are seen as having strong humanistic potential, they are not only technological systems but also

spaces for exploring perception, emotion, and meaning. Therefore, the value stance of this research is built on recognising the importance of experience, acknowledging the cultural potential of virtuality, and rethinking how aesthetics and cognition relate to each other in the digital era.

3. Conceptualisation of Creative Practice

Since this study relies on building VR environments to examine users' sublime experiences, emotional reactions, and sense of presence, producing experimental virtual scenes becomes a necessary step. In order to measure virtual sublime experience, the study understands the virtual sublime as a combination of several types of sublimity rather than a completely new category. It brings together different forms, such as the mathematical, technological, or Gothic sublime, and re-presents them inside virtual space. A virtual environment does not need to trigger every type of sublime experience, but it should contain elements that make at least some forms possible. In this sense, sublime experience is situational: it depends on objects and spatial structures that already carry certain sublime qualities. By experiencing different VR spaces, users may encounter different kinds of sublime moments, which together form their overall sense of the virtual sublime. As Jenkins suggests, virtual environments already carry a kind of narrative potential, where objects, atmosphere, and spatial layout imply a background story that users gradually discover through exploration (Jenkins, 2004). The same idea can be applied to scenes designed to

evoke the sublime.

To investigate the virtual sublime, this study proposes two types of experimental work. The first focuses on comparing how different designs influence the degree of sublime experience. Three levels of VR environments will be created. The first is a neutral scene that is not expected to trigger sublime feelings, for example, an empty plain surrounded by distant mountains. The second is a medium-level scene that includes some sublime related features, such as tall structures or large natural forms. The third scene aims to include most of the key sublime, inducing factors discussed in the research, such as a sense of infinity, strong scale contrast, spatial pressure, supernatural elements, or visually overwhelming imagery. User data collected from these three scenes will be compared to see whether the design principles summarised in the study can actually lead to higher levels of sublime experience.

The second experimental direction aims to understand whether sublime experience in VR is triggered through rhythmic processes rather than occurring in a single moment. For this purpose, a VR scene will be created that intentionally shapes users' rhythms of experience. Various elements may be added to interrupt or shift users' experiential rhythms. Examples include sudden supernatural events that create a sense of distortion or a strong contrast revealed after moving through several layers of spatial structure. This experiment requires analysing users' physiological signals, behaviour patterns, and subjective reports to understand how their rhythms of sublime experience

change over time. Compared with the first experiment, this approach is more complex, especially in terms of data interpretation and matching.

4. Research Methods

Because this study combines practice-based research with user experience research, it first looks at game examples that show common design patterns related to sublime experience. These cases help identify what kinds of spatial, visual, or atmospheric elements are often used to evoke the sublime. For instance, Gothic horror games often rely on dark and unsettling environments, supernatural elements, and tall Gothic structures (Kirkland, 2021). Open-world games may create a feeling of infinity, while Souls-like games often use extreme contrasts in architectural scale. Alongside these examples, the study also reviews existing literature on different forms of the sublime, such as the Gothic sublime, mathematical sublime, digital sublime, and virtual sublime, and summarises their main ideas.

For the user experience part of the research, a mixed-method approach will be used. During the VR experience, physiological signals and behavioural responses will be recorded, and after the session, participants will complete questionnaires. Semi-structured interviews will also be carried out to collect subjective feedback, which will then be coded and analysed thematically.

Physiological data are included to obtain a clearer picture of users' real bodily reactions and to explore how these reactions may relate to their emotions and

moments of the sublime. Such measurements are often used in VR user experience studies, so they provide a useful reference point for this research as well.

After outlining the main methodological plan, the study will then examine issues related to reliability, validity, bias, positionality, and ethics, in order to evaluate the strengths and limitations of the chosen methods.

4.1 Positionality

As someone who previously worked in the virtual reality industry, I have developed a practical understanding of VR technologies and digital tools, as well as my own way of thinking about how virtual spaces can be designed. At the same time, being a long-time player and an enthusiast of virtual experiences also shapes how I see and interpret virtual environments. I believe these experiences are important for my role as a researcher, because they allow me to approach philosophical questions through practice and to produce research that connects theory with actual design work.

My familiarity with VR creation helps me build the experimental scenes more effectively. For example, I can more easily identify which elements in a virtual environment might interrupt or shift the user's rhythm, such as how certain supernatural events can be implemented and how they might influence the user's perception.

From the standpoint of a researcher, this background helps me bring

philosophical ideas into the design process and express them in concrete design choices. The creative works then become part of the research itself. Since studying the sublime and the virtual sublime requires a good understanding of the relevant theories and their development, both perspectives, researcher and designer, are necessary. Knowing only the theory is not enough; one also needs to understand how to translate these ideas into actual virtual environments that may evoke sublime experiences. Otherwise, the scenes used in the experiment may not match the research aims, which could lead to biased data or reduce the reliability of the results.

4.2 Reliability

For reliability, this study first looks at existing game designs and previous research, especially those that discuss the sublime, the virtual sublime, and the digital sublime. These sources provide the main foundation for understanding how sublime related ideas appear in digital environments. My own perspective as both a researcher and designer is then combined with this material to guide the creation of the VR scenes. Since much of this part relies on documented research and actual game examples, it can generally be considered a stable and reliable approach.

The part of the study that requires the most attention regarding reliability is the user experience data. Because experience is subjective and different users may react differently, it is important to make sure that the collected data are as fair

and trustworthy as possible. The plan is to recruit university students as participants. This group usually has a reasonable level of cognitive ability and knowledge, and many of them have some experience with digital technologies like video games or VR, which makes them suitable for the study.

Physiological data will be collected through non-invasive devices. Behavioural responses during the VR session will be recorded on video, and the screen view will also log where the user is in the environment and what they are doing at each moment. This helps identify when certain behaviours occur. After the VR experience, users will complete questionnaires such as the Awe-S scale for awe (Yaden et al., 2019) and the Presence Questionnaire for sense of presence (Witmer & Singer, 1998).

Although the devices used for physiological measurement are generally reliable, interpreting what these signals mean for the user's actual experience requires combining them with other methods. For example, if a user's heart rate increases at a specific moment, this still needs to be checked against their behaviour, their location in the virtual scene, and the surrounding design elements to see whether it relates to a possible sublime moment. Similarly, questionnaire data need to be discussed together with the interview results and physiological signals. Only by connecting these different sources of information can we form a clearer picture of the user's experience and improve the reliability of the final findings.

4.3 Validity

For validity, the questionnaire results and interview feedback come directly from the participants' own perceptions, so the study will not interfere too much with how they express their feelings. Instead, the aim is to understand their experience as clearly as possible by looking at it from several angles. The physiological data, however, require closer examination. Changes in heart rate, skin conductance, and similar signals need to be interpreted carefully to see whether they are actually related to moments of the sublime. This connection is important for the accuracy of the study. To achieve this, physiological signals will be interpreted together with other information, such as the user's behaviour and their position inside the virtual environment at specific moments.

For the questionnaire part, the study will use established scales that are suitable for the research aims, such as the Awe-S scale and the Presence Questionnaire. These measures have good reliability and validity, and they have been used widely in previous studies, which makes the collected data more trustworthy and more closely linked to the research topic. Before participants complete the questionnaires, some potentially confusing items will be explained in advance. This step is necessary, as misunderstanding certain questions could affect the accuracy of the final results.

4.4 Bias

Bias is an important issue in this study, as it can influence how accurate and

representative the results are. In this context, bias may come from several places, for example, differences among participants, the design of the study, the devices used, or choices made during data analysis. For this project, the main concerns are participant differences, the technology involved, and the way the data will be interpreted.

Because this research is based on user experience, the biggest source of variation is the individuality of each participant. Different people may react differently or describe their feelings in different ways. I have encountered this situation many times in my earlier work. However, such variation is not necessarily a negative thing. As long as the responses truly reflect what the participants experienced, these differences can actually be helpful. They may highlight issues that were not previously considered or reveal potential directions for deeper investigation. The real problem appears when there is a large amount of inconsistent or confusing data, which may indicate problems in the experiment setup or the data-collection process.

In this study, the data to be collected include virtual sublime experience, awe, emotional reactions, sense of presence, and physiological responses. All of these are likely to vary from person to person. Because of this, it is necessary to conduct a pilot test before the formal study. The aim is to check whether the level of variation is manageable and whether the design needs to be adjusted so that uncontrolled bias does not affect the main results.

4.5 Ethics

Because this study involves user experience and data collection, most of the ethical concerns are related to these parts of the research. The main issues include the possibility that the virtual scenes may produce certain emotional reactions, the use of non-invasive physiological measurement devices during the experiment, and the fact that the participant's actions will be recorded throughout the session.

The study will follow UWTSD's ethical guidelines carefully to ensure that every participant is treated with respect and that their safety and rights are protected. Before taking part, participants will receive an informed-consent form explaining the content of the virtual experience, how physiological and behavioural data will be collected, and what kinds of emotional responses may occur. Participants will also be informed that they can leave the study at any time if they feel uncomfortable. All data will be anonymised, stored on encrypted devices, and labelled only with participant numbers so that no identifiable information is kept, in line with GDPR requirements. The data will be used only for academic research, and participants may request their data to be removed.

Since the study contains virtual experiences that may involve stronger emotional elements, such as awe or a sense of pressure, the researcher will pay close attention to participants' physical and emotional states. The researcher will observe the entire session and stop the experiment immediately if a participant experiences discomfort. After completing the VR session, participants will be

given time to talk through their experience and receive a short debrief. The virtual scenes used in this project aim to create aesthetic intensity, not harm, so they will not contain extreme horror, violence, or other content that could cause psychological distress.

Regarding the video recordings, the study will protect each participant's privacy. Unless a participant gives explicit permission, the recordings will not be shown publicly and will be used only for analysing behaviour. Access to the recordings will be limited to the researcher and the supervisory team. Before analysis, any identifiable information will be removed, and the camera will not record the participant's face, focusing instead on body movements and interactions.

Because the researcher is both the designer of the virtual environments and the person gathering and analysing the data, it is important to remain neutral during interviews and avoid influencing participants' answers. All procedures will be submitted to the university ethics committee for approval and will be carried out according to the approved guidelines.

5. Summary

This paper has examined the idea of the virtual sublime and the role of rhythm in virtual reality experiences, approaching the topic through both philosophical discussion and creative practice. In this study, the virtual world is understood as an experiential space that depends on design, but also on the user's presence and perception. The virtual sublime is not treated as something caused by a

single overwhelming object; instead, it is seen as a process that forms gradually through the interaction between the environment, the body, and the user's emotional state. Using rhythm theory, the paper suggests that the virtual sublime often appears when experiential rhythms continue, break, or come into tension, showing that this kind of experience develops in a dynamic and layered way.

For the creative part of the research, the paper introduced an early plan for several experimental VR scenes. These scenes are intended to explore how different spatial features and different structures of experiential rhythm may influence the user's sense of the sublime. The study also reflected on issues related to methodology, including reliability, validity, bias, positionality, and ethics, offering a first evaluation of the research design.

Overall, this research provides another way to think about how the virtual sublime is formed as an experience, and it also offers some practical ideas for the design of VR environments and immersive experiences.

Reference

- Burke, E., 2009. *A philosophical enquiry into the sublime and beautiful*. Routledge.
- Hughes, N.G.J., 2023. *Understanding specific gaming experiences: the case of open world games* (Doctoral dissertation, University of York).
- Kant, I., 1987. *Critique of judgment*. Hackett Publishing.
- Jenkins, H., 2004. Game design as narrative architecture. In: N. Wardrip-Fruin & P. Harrigan, eds. *First Person: New Media as Story, Performance, and Game*. Cambridge, MA: MIT Press, pp. 118–130.
- Kim, Y., 2023. “Beyond Their Actual Limits”: Immersion, Interactivity, and the Virtual Sublime in Burke and Video Games. *Games and Culture*, 18(1), pp.124–141.
- Kirkland, E., 2021. *Videogames and the Gothic*. Routledge.
- Lefebvre, H., 2013. *Rhythmanalysis: Space, time and everyday life*. Bloomsbury Publishing.
- Ryan M L. Narrative in virtual reality? Anatomy of a dream reborn[J]. *Facta Ficta. Journal of Theory, Narrative & Media*, 2018, 2(2): 91-111.
- Spokes, M., 2020. *Gaming and the virtual sublime: rhetoric, awe, fear, and death in contemporary video games*. Emerald Publishing Limited.
- Witmer B G, Singer M J. Measuring presence in virtual environments: A presence questionnaire[J]. *Presence*, 1998, 7(3): 225-240.
- Yaden, D.B., Kaufman, S.B., Hyde, E., Chirico, A., Gaggioli, A., Zhang, J.W. and

Keltner, D., 2019. The development of the Awe Experience Scale (AWE-S): A multifactorial measure for a complex emotion. *The journal of positive psychology*, 14(4), pp.474-488.