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The Effect of Personality Types on ESL University Lecturers' Creativity in Using Instructional Techniques for Online Education in Malaysian Higher Education Institutes

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ARTICLE INFO	ABSTRACT
	In response to recent shifts towards online instruction in the wake of the post- pandemic era, this study investigates the impact of personality types on ESL university lecturers' choice of instructional techniques. Specifically, it explores how personality traits influence lecturers' creativity in selecting instructional approaches during the post-pandemic era. One hundred ESL university lecturers from some Malaysian university participated in this research. A Big Five Scale (BFS) Questionnaire adapted from Costa and McCrae (1995) was used as a data collection method to measure the personality traits of extraversion/introversion. In addition, semi-structured in-depth interviews conducted via Adobe Connect online software was employed. Descriptive statistics were applied to the questionnaire data using SPSS version 21, while thematic analysis, following Braun and Clarke's (2006) procedures, was employed for the interview transcripts. The findings reveal associations between personality traits and instructional preferences. More specifically, introverted lecturers tend to use more creativity in choosing instructional techniques than extroverted lecturers. They mostly tend to use techniques related to critical thinking, such as gamification, puzzle creating, reflection-based teaching, problem-solving, questioning and answering, and debating techniques. **Keywords:** Creativity, Higher education institutes, Instructional techniques, Online education, Personality types, Post-pandemic era, University lecturers

INTRODUCTION

In education, the use of online platforms has grown dramatically in the last decade, with numerous benefits. Because many students take online courses, teachers have been asked to create online courses to increase learning and teaching efficiency. Several investigations have found that learning online may increase students' involvement, enhance the quality of discussions, and stimulate interactions (Agustin et al., 2024; Arono et al., 2022; Garrett, 2019). The debate scene may help pupils and increase their learning by resolving difficult challenges. Online technology, including software and PCs, can make it easier to access a learning platform online and improve the efficiency of online learning (Adhya & Panda, 2020; Makki & Bali, 2021). In addition, cooperation and virtual communities may be developed in an online learning framework. With the help of technologies, including iPads, tablets, laptops, and mobile phones, online education is extensively employed and acknowledged in higher education institutions (Amin et al., 2025; Online education can benefit students by shifting their focus to fundamental knowledge and allowing them to participate in collective learning events (Abu

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Hasan & Hashim, 2022; Goodloe, 2023). The formation of virtual communities may improve the outcomes of online learning and teaching (Barjestesh et al.,2025; Gebremariam, 2023; Lee, 2002; Maican & Cocorada, 2021)

After COVID-19, extensive national hard work to utilize technology for supporting remote learning, online learning, and distance education have been developed and evolved quickly. Throughout this emergency, all students were turning to online education. Such innovative platforms were distinct and strikingly different, dramatically altering how students engage and learn (Boussebha, 2023; Watjatrakul, 2020). To address online education difficulties, Huang et al. (2021) state that governments and providers of education should encourage the design of education-related information, consider equipping teachers and students with standard home-based learning and teaching materials, perform teacher training online, and assist academic studies emphasizing online education, particularly policies to help students with challenges of online learning (Adedoyin & Soykan, 2023; Mirzajani et al., 2016).

Previous studies also indicate that online technology must be combined well with educational materials and instructions. Similarly, Chen (2010) agrees with Russell et al. (2003) that teachers may apply ICT to increase the efficiency of regular duties such as planning and delivering classes, preserving pupil records, and interacting with guardians/parents (Nyamupanemunda & Deshinta, 2022; Vijayaratnam et al., 2025). Not only does the ICT combination assist pupils, but it also serves as a teacher-learning platform, allowing the possession and practice of new knowledge. Given the pervasiveness of ICT in the educational field, its application in strengthening classroom learning to support pupil-centered education is highly debated. As one of its suggestions, the American Psychological Association has recommended that teachers consider utilizing creativity in choosing appropriate technical and instructional techniques to support student-centered learning in online education (Alenezi, 2020; Farashaiyan et al, 2018; Gebremariam & Gedamu, 2023).

Teachers are also encouraged to combine technology with instructional techniques, as ICT is thought to transform outdated educational systems. Hew and Brush (2021) have similar views, claiming that the combination of ICT in education is unavoidable as technology turns out to be a 'need' rather than a 'desire' in people's lives. Our students benefit from ICT-enhanced teaching by seeking and creating innovative solutions to learning issues. As a result, students see the teachers as source individuals, for example, and a support system encouraging investigations rather than the source of answers all (Marek et al., 2021). Recently, a rise has been observed in studies on character traits in online education. Learner character traits are a substantial element influencing online education efficiency (Ravindran et al., 2023; Ferri et al., 2020). In addition, teachers' personality traits can have a substantial impact on online learning. It can affect online students' perceptions of online learning strategies, achievements, frustration, anxiety, interest, and choice of courses online. It is, therefore, critical to recognize teachers' personality traits and their effects on online education concerning teachers' methodology (Adnan & Anwar, 2020; Farashaiyan et al., 2017; Kim & Fienup, 2022).

Based on the statements mentioned above, there is a paucity of studies in the literature regarding the effect of teachers' personality traits on the choice of instructional techniques. To fill this gap, as the literature shows, no study in the Malaysian context touches on the above issue. Therefore, the present study tries to fill this gap by examining the effect of personality types on ESL university lecturers' creativity in the choice of instructional techniques during the post-pandemic era. More specifically, this study aims to investigate the impact of ESL university lecturers' personality types, specifically extroversion and introversion, on choosing instructional techniques during the post-pandemic era.

OBJECTIVES

This study has the following objectives:

1. To explore the creativity of ESL extrovert lecturers regarding the choice of instructional techniques in Online Education during the post-pandemic era.

2. To explore the creativity of ESL extrovert lecturers regarding the choice of instructional techniques in Online Education during the post-pandemic era.

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3. To identify which personality trait has more creativity in the choice of instructional techniques in online education during the post-pandemic era.

Research Questions

1. What is the ESL extrovert lecturers' creativity about the choice of instructional techniques in Online Education during the post-pandemic era?

2. What is the ESL extrovert lecturers' creativity about the choice of instructional techniques in Online Education during the post-pandemic era?

3. Which group is more creative about the choice of instructional techniques in online education during the post-pandemic era?

Literature Review

Theoretical framework

There are several acceptance models for personality traits, one of which is the five-factor model (FFM). Neuroticism, extraversion, conscientiousness, agreeableness, and openness/ experience imagination/ intellect to new experiences are the dimensions of personality traits defined by FFM (Bergner, 2020; Costa & McCrae, 2008). The Big Five Model (BFM) is utilized to determine the relationships between learner/teacher character and their impressions of the online education approach. A known psychological model, FFM, was a classification that classified character qualities into conscientiousness, agreeableness, extraversion, openness, and neuroticism to new experiences. Extraversion is a measure of an individual's sociability and assertiveness (Arispe & Blake, 2012). This research makes use of FFM as a theoretical framework to explore the effects of two personality traits of extroversion/introversion in online education.

Definition of Personality

Funder (1997) previously defined personality as a person's usual pattern of thought, emotion, and action, accompanied by psychological characteristics and relationships. McGeown et al. (2014) recently defined personality as a collection of potential characteristics influencing specific behaviors, feelings, and beliefs. The most current characterization of a person's character is the firm cluster of styles and qualities an individual has, e.g., dispositions (natural trends or specific predispositions) and how the individual differs from the community.

The Role of Personality

Personality is very significant in teaching and learning situations. Teachers with various character types choose various instructional methodologies. Some teachers prefer the classic face-to-face technique, while others prefer learning online or a combined approach. Teachers' traits can determine students' happiness, dropout rate, learning motivation, and academic performance. Personality factors may have influenced the effectiveness and quality of collaborative learning (Zhou, 2015).

Many pieces of research have been conducted to investigate the impact of personality traits on academic success. Nonetheless, most of the investigations drew contributors from identical locations, and there is a paucity of research on the impact of character qualities in online education environments, particularly in synchronal verbal communicative circumstances. In addition, no considerable empirical investigations have been conducted to determine if introversion or extraversion can impair or enhance the efficacy of online education (Abe, 2020; Vedel, 2014; Singh et al.,2021).

The Role of Extraversion/Introversion and the Previous Studies

Personality traits, including extraversion and introversion, significantly impact online learning results. In a study by Bell (2007), the results showed that extroverted or gregarious learners outscored introverted or less sociable learners. Another study by Bhagat et al. (2019) demonstrated that introverts prefer an asynchronous online learning approach to learning at their speed. In a more recent research by Micelit et al. (2021), it was found that extroverts are inclined to be more creative than introverts. As all these studies show, there are still some

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controversies regarding the role of two personality traits, extroversion and introversion, and their effects on online education. Therefore, more studies need to be conducted to examine the effects of two personality types on education, especially the techniques that lecturers use to teach their online courses.

METHODS

A mixed-method research design was used in the current study to analyze the obtained data quantitatively (questionnaire) and qualitatively (semi-structured interview), respectively.

Participants

The participants of this study included one hundred ESL university lecturers from some public universities in Malaysia, including UM, UPM, and UKM, who are majoring in languages. They were all selected from the faculty of languages and linguistics. Both genders, including 60 males and 40 females, participated. The age of subjects ranged from 40 to 50 years old. All the participants were selected based on convenient sampling. The respondents had an average of 5 to 10 years of teaching experience. They all have taught online courses for at least 18 months.

Research instruments

Personality Questionnaire

A Big Five Scale (BFS) adapted from Costa and McCrae (1995) was used as a data collection method to measure the personality traits of extraversion/introversion. These two personality traits were identified by forty-three questions, e.g., I see myself as someone who prefers to be alone; I see myself as someone who warms up quickly to others; I see myself as someone who can talk others into doing things; I see myself as someone who holds back from expressing my opinions. Each question is followed by a five-point Likert Scale, ranging from Disagree strongly to Agree strongly. The questionnaire consists of forty-three questions.

Regarding face validity, the personality questionnaire was approved by three expert professors at the School of Language Studies and Linguistics at the University of Malaya. Concerning the reliability of this study, a confirmatory factor analysis was run based on the collected data. The Cronbach alpha coefficient showed an acceptable factor analysis (0.83). Other studies have reported the acceptable value of Cronbach's alpha coefficient. For example, Donnellan et al. (2006) showed a value of .82%. In addition, Cooper et al. (2010) reported the Cronbach's alpha coefficient at about 0.81% for their research.

Interview

A semi-structured interview was another data collection method to gather the qualitative data. Thirty lecturers were voluntarily selected based on the questionnaire data to participate in the interview. In the semi-structured interviews with all the lecturers, several predetermined, precise, clear, and motivating questions were posed with considerable flexibility while listening to their responses for clues as to what question to ask next or whether it is important to probe for additional information. Each interview was conducted in English. Each interview with the lecturer took approximately 30 to 50 minutes for both extroverts and introverts to explore their creativity in choosing teaching techniques during online teaching. All the interview sessions were conducted through video conferences on the Adobe Connect platform.

For the present study, the technique that was used to enhance the validity of the interview data was peer debriefing (Ary et al., 2010). Through this technique, the researchers provided the raw data of the interviews as well as their interpretation to a colleague. The colleague reviewed the interpretations and provided some views and comments for the researchers. It should be mentioned that the colleague was a researcher who had experience in analyzing the interview data and was chosen voluntarily to assist the researchers.

Moreover, the reliability was determined through inter-rater agreement. The researchers asked a peer, who was a Ph.D. holder working on a similar area of research, to code a sample of the interview data. It is worth mentioning that the peer was familiar with analyzing and coding the interview data himself. To ensure the process of coding, the peer was also familiarized with the coding system before the coding work. The researchers discussed any inconsistency observed in the coding with the peer. The inter-rater reliability for the coding of the interview data

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gained 92% agreement. The value of agreement was achieved by dividing the total number of agreements by the total number of agreements plus disagreements and multiplying by 100. In addition, the researchers used member checks as well. After transcribing the audio data of the interviews, a summary of the interviews was prepared and sent to the participants for verification.

Research procedure

The required data for the present study were collected from August to October during one semester of the academic year 2021 in Malaysia. The data collection procedure consists of two parts: questionnaire collection and then interview.

As the first step, the questionnaires were emailed to 100 lecturers from three public universities, and their responses were sent back within three weeks. It is worth mentioning that before questionnaire collection, permission was obtained from all lecturers, as well as having informed them of the purpose of the study. The random procedure of the questionnaire distribution is that three public universities were chosen on a random basis for the collection of questionnaires among all universities.

After collecting lecturers' questionnaires, the researchers divided them into two groups, introverts and extroverts, based on the results of the questionnaires. The researchers asked thirty lecturers (fifteen extroverts and fifteen introverts) to take part in an interview. It should be mentioned that all thirty lecturers were satisfied to participate in the interview.

One-to-one interviews were conducted with thirty lecturers who had already filled out the questionnaires. All interviews were conducted in English, which was the common language between the interviewer and interviewees. Each interview took approximately 30-50 minutes. The respondents were asked a number of predetermined questions while listening to their responses for clues as to what question to ask next or whether it is important to probe for additional information. Before each interview session, the researchers briefly explained the purpose of the interview, the estimated amount of time the interview takes, and the use of a recording. The researchers also asked for the participants' consent to record the interview.

All the interviews were conducted via video conferences using the Adobe Connect platform, which were recorded as an accurate reference for the transcription and analysis. The purpose of recording the interviews was to allow the researchers to focus on them and actively listen to the interviewees. For confidentiality, the interviewees assured that their responses would be kept confidential. At the end of each interview, the respondents were asked to provide any further comments or information that could shed light on the issue discussed.

Data Analysis

Having collected the required data, both quantitative and qualitative analyses were carried out to answer the research questions of the study. The data were collected through questionnaires and were subjected to descriptive statistics through the Statistical Package for Social Science (SPSS) version 21 software. The mean scores within 28 and above were considered as extroverts, and the mean scores below 28 were regarded as introverts. Regarding the interview data, a thematic analysis was carried out according to the analytical steps adapted from Braun and Clarke (2006). This analysis was done after the transcription of all interview data.

RESULTS

The first part of the results elaborates on the quantitative findings. Then, the findings of the qualitative data are presented.
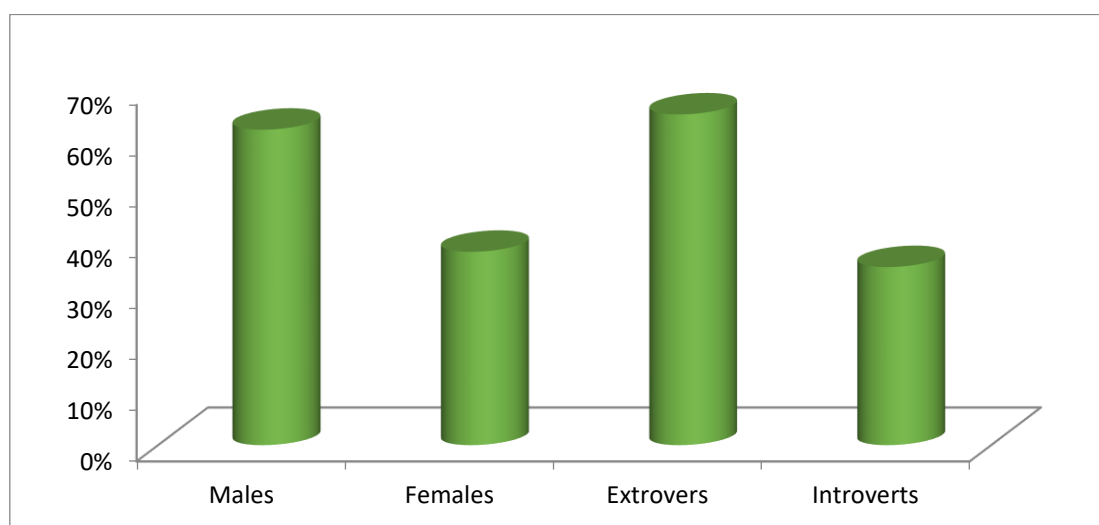
Results from the Questionnaire

The BFS questionnaire was used as the data collection method to measure the personality traits (introversion/extroversion) of the respondents in this research. The data were analyzed through descriptive statistics to show the number and percentage of both groups of participants (introverts/extroverts). The following table illustrates the results.

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Table 1. Descriptive Statistics of the Personality Questionnaire

	Frequency	percentage
Males	62	62%
Females	38	38%
Extroverts	65	65%
Introverts	35	35%
total	100	100%

As can be seen in the above table, one hundred lecturers participated in the study. Of this number, 65% of the respondents were males, while 35% of the sample consisted of females. In addition, extrovert lecturers outnumbered introverts. As the table shows, 62% of the participants were extroverts, while the other 38% comprised the introvert group.

Figure 1. Descriptive Statistics of the Personality Questionnaire

Results from the Interview

The results of the interviews aim to answer the research objectives. Therefore, the extrovert and introvert lecturers' perceptions of their creativity in instructional techniques they use for teaching online were elicited. These semi-structured interviews were conducted with thirty of them who had already filled out the questionnaires. Having analyzed the data generated from the interviews, the researchers came up with a number of categories, which are also described below.

1-What is the ESL extrovert lecturers' creativity about the choice of instructional techniques in online education during the post-pandemic era?

To answer the first research question, fifteen extrovert lecturers were interviewed about the choice of instructional techniques in online education in the post-pandemic era. Eight categories identified by the researchers were visualization, web-conferencing technique, group-based discussion technique, forum-based instruction, video-presentation, topic-based instruction, face-to-face discussion technique, and micro-learning-based instruction. The table below shows the techniques used by ESL extrovert lecturers in teaching online courses, including their frequency and percentages.

Table 2. The techniques used by ESL extrovert lecturers in teaching online courses

Techniques	Number	Percentage
1. Visualization technique	1	7%
2. Web-conferencing technique	2	13%

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3. Group-based discussion technique	3	20%
4. Forum-based instruction technique	1	7%
5. Video-presentation technique	4	26%
6. Topic-based instruction technique	1	7%
7. Face to face discussion technique	2	13%
8. Micro learning-based instruction technique	1	7%
9.Total	15	100%

Table 2 shows the techniques used by extrovert lecturers. As the data show, the most used creative technique is video-presentation (26%) and group-based discussion techniques (20%). In support of this finding, for example, Dr. Selva, the lecturer who took part in the interview, mentioned that he presents videos to students to pose some discussions among them and gives some comments and ideas from them to evaluate their understanding.

> My creativity during online teaching is video presentation. Normally, I use some videos. I play some videos, short videos, about five to ten minutes, about some particular subjects or some particular courses for competency purposes; I will use the videos according to the course content. It means that in a particular week if I want to teach some particular topics, so I will try to get some videos, short videos. I will play them and I will pose some discussions among the students. Sometimes, students need to show short videos, need to do some recording, and then they have to upload in the spectrum.

One lecturer expressed that he does not have that much creativity in his online teaching classes. Instead, he usually makes use of conventional techniques in teaching his courses in online education during the post-pandemic era. One of the interviewees expressed his views in this way:

> I do not have much creativity in the instructional techniques. I still use the conventional method. I will provide titles or topics to the students and ask them to find facts by themselves either individually or in a group and then present using PowerPoint online. The students are also encouraged to use either Yahoo games or quizzes to enhance their understanding. If needed, I also provide YouTube links.

2-What is the ESL introvert lecturers' creativity about the choice of Instructional Techniques in online education during the post-pandemic era?

To answer the second research question, fifteen introverted lecturers were interviewed about the choice of instructional techniques during the post-pandemic era. Some categories identified by the researchers were fun-based instruction, gamification, puzzle-creating technique, project-based instruction, reflection-based teaching, problem-solving technique, collaborative-based instruction, video presentation, questioning and answering technique, inquiry-based instruction, online Lego instruction, WhatsApp-based instruction, specialists' expertise-based technique and debating technique.

Table 3. The techniques used by ESL introvert lecturers in teaching online courses

Techniques	Number	Percentage
1. Fun-based instruction technique	1	4%
2. Gamification technique	2	8%
3. Puzzle- creating technique	3	13%
4. Project-based instruction technique	1	4%
5. Reflection-based teaching technique	1	4%
6. Problem-solving technique	4	17.5%
7. Collaborative-based instruction technique	1	4%
8. Video presentation technique	1	4%
9.Questioning and answering technique	4	17.5%

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10. Inquiry-based instruction technique	1	4%
11. Online Lego instruction technique	1	4%
12. WhatsApp-based instruction technique	1	4%
13. Specialists' expertise-based technique	1	4%
14. Debating technique	2	8%
Total:	24	100%

Table 3 shows the techniques used by the introvert lecturers. As the data show, the most used creative techniques are problem-solving techniques (17.5%), questioning and answering techniques (17.5%), puzzle-creating techniques (13%), Gamification techniques (8%), and debating techniques (8%), respectively. In support of the above-mentioned findings about the introvert lecturers' creativity in choosing the instructional techniques, Dr. Sita, for example, stated her process of teaching online in this way:

> The creativity I usually employ in teaching my courses is problem-solving technique. I will cast some sort of problem, artificial or sometimes it will be a real problem to bring some students together as a team and to sit and take a role and make a solution to the problem. The purpose is that students can find good solutions to problems. In this way, I can see the students' critical thinking is enhanced from the first day I saw them.

Another introverted lecturer mentioned that debating is a creative technique he uses during online classes. He thought that debating is a very good technique to make the students completely involved in the topic under study. He stated his process of instruction in this way:

> My creativity is using the debating technique. Sometimes, before starting the class, or in the middle of the class, I will ask the students to watch a short video of less than thirty seconds or one minute. Then after that, they enter the class, then I will ask them to debate on that video. So, debating is a very good technique in a view to encourage the students to fully participate, to fully involved in the topic and I find it quite interesting to conduct lectures or tutorials in that way online. For me, to conduct a class online is another matter. Compared to primary students they will get bored, hereby, we open the space to the students to ask for their opinions. I find it more creative to ensure the involvement of the students in the class. Debating is very important and that is almost used in all my courses. For each topic, there is a debate.

Two of the interviewees mentioned that they use questioning and answering techniques as their creativity to involve students more in the teaching process. In addition, they declared that by using the questioning and answering technique, the students give their ideas and feedback about the proposed issue and give their solutions. Dr. Deepak, another interviewee, expressed that she uses the questioning and answering technique as her creativity in teaching online courses. She declared her views as follows:

> My creative style of teaching is more like questioning and answering techniques. The students are questioning me and I am questioning them more and I get the answers from them. I usually pose some questions before the class, before I start my class. So, when I throw some simple questions, so the students will start to answer the questions. In this case, the discussion will be based on their answers.

Another participant who uses the questioning and answering technique as his creativity argued that while teaching online, students do not switch on their cameras. Hence, she cannot interact with them face-to-face. In that case, I do not know whether they are following me or not. Therefore, she used the questioning technique to see whether the students were following my speech or not. In addition, I want to increase students' critical thinking and force them to find the best solution.

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In addition to using the above-mentioned techniques, two respondents expressed their opinion that they use some kind of games as their creativity to teach online classes. This was labeled as gamification techniques, which emerged from the interview data. These two lecturers had the same idea for the use of this technique, but they had different reasons. Another interesting technique mentioned by one of the introverted lecturers was the use of puzzle creation as his technique in teaching online. He supports his view that students can increase their critical thinking and problem-solving skills. In addition, they can more actively and skillfully apply, analyze, and evaluate the obtained information.

3. Which group is more creative about the choice of instructional techniques in online education during the post-pandemic era?

Based on the above findings, introverted lecturers are more creative (24 techniques) than extrovert lecturers (15 techniques). In addition, the obtained data illustrates that introverted lecturers use a variety of creative techniques in their online classes.

DISCUSSION AND CONCLUSION

The findings obtained from the interview data with both introvert and extrovert lecturers showed that introvert lecturers tend to use more creativity in choosing instructional techniques than extrovert lecturers. They mostly tend to use techniques related to critical thinking, such as gamification, puzzle creating, reflection-based teaching, problem-solving, questioning and answering, and debating techniques. In addition, they tend to use more creativity in using the instructional techniques that make their online classes less boring and make their students more motivated, interested, and involved in the topic under study. This finding can be justified in this way as an introverted person tries to solve his/her problem by himself/herself, more concerned with his/her thoughts and abilities rather than others. This finding is in contrast with Micelit et al.'s (2021) study, which found that more extroverts are inclined to be more creative than introverts.

On the contrary, extrovert lecturers tend to use more interactive techniques such as visualization, inquiry-based instruction, web-conferencing, group-based discussion, forum-based instruction, video presentation, topic-based instruction, and face-to-face discussion techniques. In addition, a number of them mentioned that they do not use any creativity in the instructional techniques. They still use conventional techniques. In addition, they prefer traditional physical and face-to-face teaching. This finding can be discussed in this way since extroverts are sociable individuals and are inclined to interact with others more. Therefore, physical classrooms can increase their communication and interactions with other peers, while online classes can hinder their social interactions. This finding is partially in line with Fuster (2019), who discovered that extroverts prefer traditional classes since they can have more interactions with peers and teachers.

From this study, it can be concluded that the personality traits of introversion and extroversion can have some effects on creativity in choosing the instructional techniques for online teaching courses during the post-pandemic era. This research could provide a guide for lecturers and teachers to make use of a variety of instructional techniques and improve the effect of online teaching. This research can have a theoretical contribution to the existing research literature regarding the studies done on the personality traits of introversion and extroversion in the teaching and learning domain with regard to the two personality traits of extroversion. In addition, it encourages a more comprehensive look at personality traits in the teaching area.

The findings of this study have some practical implications for curriculum lectures, curriculum developers, and materials writers as well. Lecturers and instructors can become aware of different techniques such as gamification, puzzle creating, reflection-based teaching, problem-solving, debating, and other techniques to teach their online courses for different purposes. In addition, both introvert and extrovert lecturers can be informed of a variety of techniques to use in their online classes during the post-pandemic era. Curriculum developers and materials writers may gain some ideas from these techniques to plan and develop materials. In addition, they can make instructors aware of these techniques for online instruction in Teacher Training Courses (TTC).

Limitations and Suggestions for further research

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This study has a number of limitations. The first limitation is that the respondents were confined to Indian ESL lecturers. Second, this research was performed during the post-pandemic era. In addition, two personality traits, introversion and extroversion, were investigated. Future research can investigate the effects of other personality traits, such as conscientiousness, agreeableness, neuroticism, and openness, to new experiences. In addition, more research can be conducted to investigate the effects of personality types on creativity in the choice of evaluation techniques during the post-pandemic era. Another study can be done in other contexts, such as primary or high school settings.

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