

PAPER

Substitutor or Assistant: The Double-Edged Sword Effect of Artificial Intelligence Images on OTPs

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ABSTRACT

Recently, the green concept has become integral to education, leading to the rise of paperless online teaching. With the rapid development of online teaching platforms (OTPs) due to the pandemic, studies on user behavior have gained momentum. However, most studies have focused on students' online learning attitudes and behaviors, neglecting in-depth analysis of teachers' behaviors on OTPs. OTPs can either assist or substitute teachers, enhancing efficiency but also causing anxiety. This paper proposes reframing OTPs as assistants to reduce teachers' resistance. We investigate if the OTP image (assistant vs. substitutor) impacts teachers' satisfaction in a specific online teaching context, exploring its explanatory mechanisms. A study of 2*2 group experiments revealed that teachers were less threatened by the assistant OTP image and thus more satisfied. Experiment 1 confirmed that the OTP image influenced teachers' willingness to recommend and satisfaction. Experiment 2 again tested the effect of different images of OTP (facilitator vs. substitute vs. control group) on teacher satisfaction, and the pie verified the mediating role of identity threat in this effect. Experiment 3 verified that self-affirmation as a moderating variable mitigates identity threats due to the alternative image of the OTP. Therefore, in the future promotion of AI products, more emphasis should be placed on assisting users rather than completely replacing traditional human hands, thus weakening the identity threat posed by AI products to users. The findings of this study enrich the study on teachers' attitudes towards OTPs, dissect the sources of users' (teachers') satisfaction with OTPs from the perspective of product/brand (OTP) image, and provide guidance on how OTPs can choose the appropriate image positioning and promotional language.

KEYWORDS

online teaching platform (OTP) image, identity threat, teacher satisfaction

1 INTRODUCTION

As the economy grows, ecological issues gain attention. In education, green and low-carbon concepts are being adopted. Environmental education for teachers and students integrates conservation into their daily lives, promoting green campuses.

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Due to COVID-19, online teaching reduces offline activities, breaking geographical barriers and enabling paperless teaching, which contributes to timber and forest conservation. Its shared resources, timeliness, and personalized learning make online education popular with teachers. However, with the advancement of online education, online teaching platforms (OTP) excel in tracking progress and grading, and AI-integrated courses nearly match teachers' independence [1]. AI teaching is a new trend. Teachers use OTPs to study and improve skills. But AI's intelligence threatens jobs, as assessments are online. OTPs address needs precisely, unlike traditional teaching. OTPs pose a threat to teachers' careers due to their intelligence.

Online teaching platforms are a bilateral market with teachers as service providers and students as consumers. The current study focuses mainly on students' engagement, overlooking teachers' willingness and satisfaction. Teachers' engagement determines OTP service quality. A skilled teacher workforce engages students better. Teachers' OTP use for teaching is an extension of their offline identity, an act of identification.

However, if OTPs threaten teachers' identities, causing anxiety, they may develop negative attitudes, risking OTP development. Companies recognize OTPs' image as 'assistant' vs. 'substitutor' in teachers' minds. Positioning OTPs as 'assistants' mitigates identity threats, reducing teachers' negative attitudes. Recent study on online learning platforms is summarized in Table 1.

The study on online teaching platforms emphasizes platform improvement, focusing on content, technology, and service quality. Sarah I. Hofer et al. discussed online teaching and learning in higher education [2]. To improve the user experience, Haiyang Hou et al. applied the EDAS method to evaluate the live online course experience. From the lecturer's perspective, scholars note significant differences on lecture styles among subjects in online platforms [3].

Platform lecturers are interested in learner-platform interaction data. Scholars examined this from the student perspective, validating spatial design, visual appeal, and teacher presence on student acceptance. Limited attention has been given to teachers' OTP usage and satisfaction. This study explores the effect of OTP images on teacher satisfaction, comparing 'substitutors' and 'assistants.' It provides insights into teachers' negative attitudes and analyzes the images' impact on satisfaction. It suggests the images' effect on teachers' identities and attitudes towards new technologies. This provides new insights into teachers' negative OTP attitudes and broadens OTP management study.

Table 1. Research related to online learning platforms

Reference	Variables	Perspective	Main Points
(Amir Hossein Ghapanchi et al., 2020) [4]	space design, visual attractiveness, perceived instructor presence	Student	The positive effects of three research variables on students' acceptance of LMS were confirmed.
(Yating Li et al. 2021) [5]	process data and behavioral data of teachers on OTP	Teacher	Information-based teaching and behavioral research data can best reflect the level of information literacy.
(Changcheng Wu et al., 2021) [6]	semantic features	Platform lecturer	Different presentation styles in different disciplines, including notes, discussion posts, and overall course satisfaction.
(Liqiu Zhou et al., 2022) [7]	Perceived variables, online course design	Student	Online course design, including perceived system quality, perceived enjoyment, and effective learner willingness to learn.

(Continued)

Table 1. Research related to online learning platforms (*Continued*)

Reference	Variables	Perspective	Main Points
(Jing Zhang et al., 2022) [8]	content quality, technical quality, service quality	Platform	The improvement of the platform's style, tool function, and operating efficiency enhance teachers' experience of online training.
(Georgios Zacharis et al., 2022) [9]	behavioral influencing factors	Student	Performance Expectancy, Learning Value and Habit had a significant impact on students' intention to study.
(Noawanit Songkram et al., 2022) [10]	perceived variables, subjective norms Technology self-efficacy	Teacher	Attitude and subjective norms significantly influenced behavioral intentions toward use.
(Haiyang Hou et al., 2022) [3]	different platform objects being evaluated	Platform	The EDAS method is applied to solve the user experience evaluation problem of the platform providing live online courses.
(Maya Usher et al., 2022) [11]	instructors' interest in educational data and their perceived barriers to data use	Platform lecturer	Instructors showed great interest mostly in data about social interactions with the MOOC educational resources.
(Jingkuang Liu et al., 2022) [12]	factors of teaching evaluation	Platform	The factors that affect the effective teaching of MOOCs are clarified.
(Zibo Liang et al., 2022) [13]	knowledge graph	Platform	A resource recommendation method named multi-path Embedding and User-centered Reasoning (MEUR) is proposed.
(Tinggui Chen et al., 2020) [14]	user experience factors, user emotion	Platform	Personal factors have no direct influence on user satisfaction, while platform availability has the greatest influence on user satisfaction.
Our research	OTP image, Teacher satisfaction Self-affirmation, Identity threats	Teacher	Compared with the image of the substitute, teachers have less threat to the image perception and identification of OTP assistant, and higher satisfaction.

2 THEORETICAL BACKGROUND AND RESEARCH HYPOTHESIS

2.1 Teachers' satisfaction with OTPs

Teachers' roles in modern online education are redefined. A high-quality team guarantees online education quality. Teachers, as decision-makers and organizers, guide, collaborate, and facilitate. Their satisfaction and engagement relate to student performance. Understanding teachers' satisfaction is crucial for quality online teaching. The current academic study offers two explanations for why teachers may have negative attitude toward OTPs. The first explanation is rooted in teachers' perceptions of 'OTPs' as inanimate, mechanical platforms. Teachers tend to believe that mechanical products are rigid and inflexible and that they only do standardized and repetitive work according to a set procedure. In teachers' perceptions, the services provided by OTPs rely on pre-determined processes for processing existing data, resulting in services that are more commonplace and less flexible in terms of teaching activities and content. Based on this mechanical perception, teachers may find it difficult to interact efficiently with the OTP [15–17]. The second way of explaining teachers' concerns, anxieties, and psychological resistance to OTPs is from an identity perspective. Teachers' choice of teaching platforms is influenced by identity, demonstrating social group affiliation. Self-image-product congruence theory explains how purchasing and using a product signals identification

with a group. When OTPs assist teachers, they reinforce teacher identity, reducing identity threats. Conversely, when OTPs substitute for teachers, they threaten teacher identity [18–20].

2.2 The image of the OTP

Marketing and brand managers craft images to convey style by associating products/brands with human characteristics. Mercedes-Benz is “stable” and “sophisticated,” and Coca-Cola is “young” and “cool.” These human traits define the product and brand image. Study covers personality, gender, and social role traits. Personification transforms consumer-product interaction into a human-like relationship. Packaging alters the relationship, influencing attitudes. Packages like ‘supporter’ or ‘controller’ change the consumer-product and brand relationship. This study argues that the OTP image can change its positioning vis-à-vis teachers, altering their attitudes. At the OTP image level, study lacks understanding of how to change teachers’ attitudes by changing their role image. This study abstracts the OTP role image from teacher-OTP interaction. OTPs’ replacement of traditional teaching fuels debate on their role. Some see OTPs as teacher complements, while others view them as a ‘Pandora’s box’ that may replace teachers, changing teaching structures. OTPs can replace teachers’ tasks, especially during the epidemic. They can also assist teachers, intervening in teacher-student interactions. OTPs’ substitutor or facilitative role is prevalent in teaching today. OTPs can aid or replace teachers: teachers can enhance effectiveness through OTPs, while OTPs also replace teachers, reducing staffing. OTPs replace teachers in work and management, but full replacement is risky, emphasizing OTP-teacher collaboration. Existing OTP images, whether ‘friend,’ ‘servant,’ ‘supporter,’ or ‘controller,’ all view OTPs as teacher tools. But none adequately represent OTPs’ agency, autonomy, and support. This study proposes ‘assistant’ and ‘substitutor’ OTP images, exploring their impact on teacher satisfaction. Teachers’ satisfaction differs with OTPs as ‘assistants’ vs. ‘substitutors.’ Substitution reduces teachers’ control, threatening identity and satisfaction. The ‘assistant’ role emphasizes collaboration, reducing threats, and increasing satisfaction. Teachers prefer OTPs for reducing stress, improving performance, and avoiding identity threats. Teachers are less satisfied with ‘substitutor’ OTPs than ‘assistants’ due to identity threats [21–25].

Hypotheses were formulated accordingly.

- *H1: An OTP with a ‘substitutor’ image reduces teacher satisfaction compared to an ‘assistant’ image.*
- *H2: Identity threat mediates the effect of the image of the OTP on teacher satisfaction, with the image of the ‘substitutor’ OTP increasing teacher identity threat compared to the ‘assistant’, which in turn decreases teacher satisfaction.*

2.3 The moderating effect of self-affirmation

Theoretically, teachers’ negative attitudes toward the substitutor OTP stem from identity threats, but self-affirmation mitigates this. Self-affirmation helps teachers understand and value themselves, countering external threats. When teachers emphasize their worth, they don’t rely on identity threats. This study explores whether self-affirmation reduces teachers’ negative OTP attitudes. While lacking

empirical evidence, this study aims to verify this by re-examining the identity threat's mechanism. It argues that self-affirmation increases OTP 'substitutor' acceptance by reducing identity threat perceptions. The following hypothesis is proposed: self-affirmation mitigates teachers' negative attitudes towards the 'substitutor' OTP.

- *H3: Self-affirmation moderates the effect of the OTP image on teachers' satisfaction. Specifically, when teachers are given higher self-affirmation, the effect of the "assistant" and "substitutor" images of the OTP diminishes or even disappears.*

In summary, the framework model for this study was developed (see Figure 1).

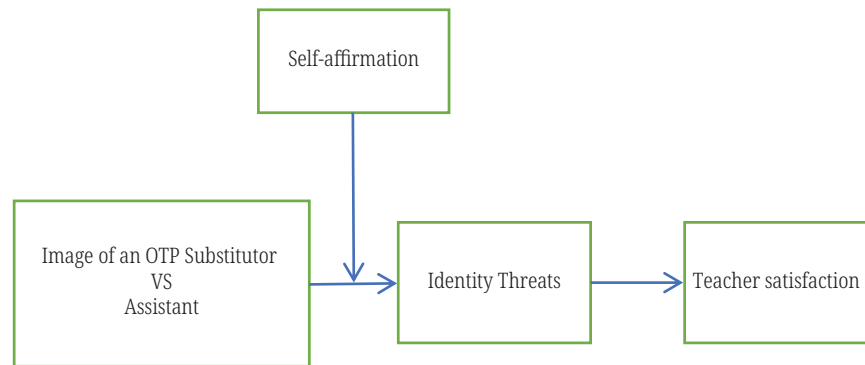


Fig. 1. Framework for this study

3 EXPERIMENT 1: THE EFFECT OF OTP IMAGE ON TEACHER SATISFACTION

The main objective of Experiment 1 was to examine the effect of the OTP image (assistant vs. substitutor) on teacher satisfaction.

3.1 Experiment 1 experimental design and participants

Experiment 1 used a 2*2 design: OTP image (assistant vs. substitutor) × subject (offline vs. virtual teacher). Offline teachers served as a control, confirming the unique role of OTPs. 213 teacher trainees completed the survey, with 210 valid responses (56% female, mean age 22.07 ± 2.18). Participants imagined being a teacher and recommending an online platform. They read an advertisement, manipulated for different product images. In the offline teacher + OTP condition, the software was named "Dolphin Education Tutoring," and the services included online tutoring in the classroom with a real teacher; in the virtual teacher + OTP condition, the software was named; "Dolphin AI Education Tutoring," Under the virtual teacher + OTP condition, the software is called "Dolphin AI Education Coaching," and the service includes online classroom coaching by virtual AI teachers. The tagline for the "assistant" image group is; "Powerful assistance for teachers in after-school tutoring." The tagline for the "Replacement" image group was "Completely replacing the teacher for after-school tutoring," and the rest of the text descriptions and images were identical. Participants were then asked to fill in their own willingness to recommend

(“I would recommend this software to my students,” 1 = very low, 7 = very high, adapted from an existing scale). Next, the scale of satisfaction was referred to as a measure of teacher satisfaction (1–5 points). The manipulation test questions were then filled in to determine the subject of this service provider (1 = virtual AI teacher, 7 = real teacher) and the image of the OTP (1 = substitutor, 7 = assistant) [26–28]. Finally, demographic information was reported.

This study used SPSS 25.0 for data analysis, experimental stimulus manipulation tests, and linear regression analyses based on the study questions and hypotheses. The correlation results for each continuous variable are shown in Table 2.

Table 2. The correlation results for each continuous variable

Variables	Service Provider	Image of the OTP	Willingness to Recommend	Satisfaction	Age	Sex
Service Provider	1					
Image of the OTP	-0.214*	1				
Willingness to Recommend	0.371**	0.262**	1			
Satisfaction	0.212**	0.313**	0.379***	1		
Age	0.132*	0.077	0.169*	0.076	1	
Sex	0.098	0.032	0.201*	0.185*	0.032	1

Note: *p < 0.05, **p < 0.01, ***p < 0.001.

From Table 2, it can be seen that there is a correlation between the subjects’ personality traits (control variables), service provider image of the OTP, individuals’ willingness to recommend, and teacher satisfaction. Therefore, we followed up with a further analysis to further explore the causal relationship between these variables, willingness to recommend, and teacher satisfaction.

3.2 Experiment 1 hypothesis testing

(1) Manipulation test. The results of the manipulation test of the image of the OTP showed that the interaction between the teaching service provider (online AI virtual teacher vs. real teacher) and the image (assistant vs. substitutor) did not significantly differ on participants’ judgments of the image of the OTP ($F(1,210) = 0.032, p > 0.8$), and the main effect of the provider’s image was significant ($F(1,210) = 17.234, p < 0.001$; M substitution = 4.255, SD = 1.612; M assistance = 5.541, SD = 1.427) and a non-significant main effect for the service provider subject ($p > 0.9$). This indicates that the manipulation test for the image of the OTP was successful.

Manipulation test results showed no significant interaction effect on OTP subject judgment ($F(1,210) = 0.028, p > 0.8$). The main effect of provider subject was significant ($F(1,210) = 17.831, p < 0.001$), with real teachers perceived as more human.

(2) Willingness to recommend. ANOVA was used to analyze the influence of the OTP’s teaching subject (online AI virtual teacher vs. real teacher) and image (assistant vs. substitutor) on teachers’ willingness to recommend, resulting in a significant effect of the interaction between the OTP’s subject and image on teachers’ willingness to recommend ($F(1,210) = 4.324, p = 0.043$) [29]. For AI teachers, assistant images led to higher recommendations (M = 4.741) than substitutor images

($M = 4.104$). Human teachers' recommendations were unaffected by the OTP image ($p > 0.5$). The main effects were not significant ($ps > 0.06$) [1].

(3) Teacher satisfaction. Again, ANOVA was used to analyze the effect of the OTP's teaching subject (online AI virtual teacher vs. real teacher) and image (assistant vs. substitutor) on teacher satisfaction, resulting in a significant effect of the interaction between the OTP's subject and image on teacher satisfaction ($F(1,210) = 7.312, p = 0.008$). Simple effects analysis revealed that for cases where the provider subject was the online AI virtual teacher, there was a significant difference in teacher satisfaction with the OTP across images ($F(1,210) = 9.178, p = 0.001$). Assistant images led to higher satisfaction ($M = 3.924$) than substitutor images ($M = 3.192$) [29]. For human teachers, OTP image had no significant effect ($p > 0.5$). The main effects were not significant ($ps > 0.1$).

3.3 Discussion

Experiment 1 found higher satisfaction with AI teachers as assistants than as substitutors, supporting hypothesis 1. For online real teachers, satisfaction didn't differ between images. Next, we'll focus on the online platform effect on teacher satisfaction.

4 EXPERIMENT 2: THE MEDIATING ROLE OF IDENTITY THREAT

The main purpose of Experiment 2 was to examine the effect of different images of online education platforms (assistant vs. substitutor vs. control group) on teacher satisfaction, to explore the mediating role of identity threat in this effect, and to rule out some potential explanations.

4.1 Experimental design and participants

Experiment 2 used a one-way design: OTP image (assistant, substitutor, control). 180 teacher educators completed the survey (49% female, mean age 24.25 ± 2.38). They read ads for online apps with varied textual content: the assistant group stated OTP assists teachers; the substitutor group said OTP replaces teachers; and the control group had no OTP image. Satisfaction with the app was measured ($\alpha = 0.925$). Participants then completed an identity threat scale with questions such as "The online learning platform challenges my right to teach autonomously," "The online learning platform threatens my dominant position in teaching and learning," and "The online learning platform threatens my dominant position in teaching and learning." "The OTP would reduce my control over the teaching process," "The OTP would reduce my autonomy in the choice of content," "Reliance on the OTP would reduce my ability to select appropriate teaching," and "The OTP would reduce my ability to select appropriate teaching." The scale was adapted from an existing study, Cronbach's $\alpha = 0.931$. In addition, participants filled in their "familiarity" and "friendliness" with the OTP (1 = not at all, 7 = fully) [30]. And "friendliness" (1 = not at all, 7 = fully) as substitutor explanations. The participants then filled in the manipulation test questions to determine the image of the OTP in the teachers' choice of teaching platform (1 = substitutor, 7 = assistant) and finally reported the demographic information.

4.2 Hypothesis testing

(1) Manipulation test. The results of the manipulation test of the image of the online education platform showed that there were significant differences in the judgments of the OTP on the image of the teaching service provider ($F(2, 178) = 32.614, p < 0.001$): The substitutor group saw OTP as more substitutive ($M = 3.857$); the assistant group saw OTP as more assisting ($M = 5.618$); and the control group was in between ($M = 4.464$). Significant differences were found between the substitutor and assistant groups and between the assistant and control groups, indicating successful manipulation [31].

(2) Teacher satisfaction. ANOVA was used to analyze the effect of the image of the OTP on teacher satisfaction, resulting in a significant effect of the image of the OTP on teacher satisfaction ($F(2, 178) = 5.152, p = 0.008$). Assistant image had the highest OTP satisfaction ($M = 5.51$); the control group followed ($M = 5.28$); and the substitutor group had the lowest ($M = 4.65$). Assistant group more satisfied than substitutor ($p = 0.001$); no difference from control ($p > 0.5$); substitutor less satisfied than control ($p = 0.023$) [29]. Hypothesis 1 was again supported.

(3) Mediation analysis. Mediation analysis showed OTP image effects on teacher satisfaction via identity threat. I used Process 3.4 in SPSS to set a categorical variable, 5000 Bootstrap samples, and a 95% CI [32]. The results of the mediation analysis showed significant indirect effects for the assistant image group (95% CI: [0.4607, 1.3315], excluding 0) relative to the substitutor image group, and significant indirect effects for the control group (95% CI: [0.1024, 0.9607], excluding 0). Relative to the substitutor image group, the direct effects of both the assistant image group (95% CI: [-0.3624, 0.0983], inclusive of 0) and the control group (95% CI: [-0.1773, 0.2911], inclusive of 0) were not significant, thus identity threat mediated the OTP image's effect on teacher satisfaction. Assistant image caused a lower identity threat ($\beta = -0.810, p = 0.001$) than substitutor; the control group was also lower ($\beta = -0.479, p = 0.031$). Identity threat reduced satisfaction ($\beta = -1.085, p < 0.001$) (Song G J et al., 2021). The results of the mediation analysis supported H2.

(4) Exclusion of other explanations. ANOVA was used to analyze the influence of OTP image on teachers' familiarity and intimacy, respectively, and the results showed that there was no significant influence of OTP image on familiarity and intimacy ($ps > 0.15$), so the explanations of familiarity and intimacy were excluded [33].

4.3 Discussion

Experiment 2 verified the mediating role of identity threat and found that teachers felt less identity threat from the OTP with the image of an assistant relative to the image of a substitutor, and were therefore more satisfied with it; it also ruled out the potential explanation of familiarity and cordiality in this effect.

5 EXPERIMENT 3: THE MODERATING ROLE OF SELF-AFFIRMATION

Experiment 3 attempted to find ways to mitigate the identity threat generated by the substitutor image of the OTP from a self-affirmation perspective, and to enable teachers to accept the convenience brought by the OTP, increase their willingness to use it, and promote the iteration and optimization of the OTP.

5.1 Experimental design and participants

Experiment 3 used a 2*2 design: self-affirmation (high, low) and an OTP image (assistant, substitutor). 223 teacher educators completed the survey (48% female, age 25.78 ± 5.236). They imagined being teachers, then read self-affirmation materials. The high-affirmation group read, “You’re attentive and proud of your skills.” The low-affirmation group read, “Your skills are unprofessional. You have little confidence” [34]. Participants were asked to imagine that they had recently come across an online teaching app, and they took a satisfaction assessment after reading the instructions of this online teaching app. The experimenter manipulated the image of the OTP through textual descriptions on the product description page of the online teaching app, with the tagline emphasizing the online teaching app as “your substitutor to online teaching” for the substitutor image product and as “your substitutor to online teaching” for the assistant image product. “Your online teaching assistant.” Participants were then asked to fill in their satisfaction with the app (as in Experiment 2, Cronbach’s $\alpha = 0.921$) and their intention to use it (“I am very unlikely to use this online teaching app,” 1 = very low, 7 = very high, scale selected from existing studies). Participants completed the Identity Threat Scale (as in Experiment 2, Cronbach’s $\alpha = 0.918$). The manipulation test items were then filled out to determine the image of this online teaching app (1 = substitutor, 7 = assistant) [35]. Finally, demographic information was reported.

Table 3. The correlation results for each continuous variable

Variables	Self-Affirmation	Image of the OTP	Identity Threats	Intention to Use	Satisfaction	Age	Sex
Self-Affirmation	1						
Image of the OTP	0.104*	1					
Identity Threats	-0.197**	-0.216**	1				
Intention to Use	0.128**	0.166*	-0.412*	1			
Satisfaction	0.272*	0.206**	-0.204*	0.407***	1		
Age	0.131*	0.083	0.203	0.171*	0.084	1	
Sex	0.092	0.092	0.086	0.211*	0.155*	0.019	1

Note: *p < 0.05, **p < 0.01, ***p < 0.001.

From Table 3, it can be seen that there is a correlation between subjects’ personality traits (control variables), self-affirmation, and image of the OTP, identity threats, and individuals’ intention to use and teacher satisfaction. Therefore, we followed up with a further analysis to further explore the causal relationship between these variables, intention to use, and teacher satisfaction.

5.2 Hypothesis testing

(1) Manipulation test. The results of the manipulation test of the image of the online teaching app showed that there was a significant difference between the

manipulation of the image of the online teaching app and participants' judgments of the image of the online teaching app ($F(1, 220) = 5.897, p = 0.016$), with participants in the substitutor image group being more likely to perceive the online teaching app as a substitutor ($M = 5.672, SD = 1.363$) and the assistant image group Participants were more likely to perceive the online teaching app as an assistant ($M = 5.987, SD = 1.165$) [36]. Therefore, the manipulation of the image of the online teaching app in Experiment 3 was successful.

(2) Teacher satisfaction. ANOVA was used to analyze the effect of self-affirmation and online teaching app image on teacher satisfaction, resulting in a significant interaction between self-affirmation and online teaching app image on teacher satisfaction ($F(1, 220) = 7.531, p = 0.006$). Simple effects analysis revealed that for the low self-affirmation group, there was a significant difference in the effect of online teaching app image on teacher satisfaction ($F(1, 220) = 7.131, p = 0.013$). The assistant image group is more satisfied ($M = 5.968$) than the substitutor ($M = 5.325$). For high self-affirmation, the image effect was not significant ($p > 0.2$). The main effects are not significant ($ps > 0.3$) [26].

(3) Intention to use. ANOVA was used to analyze the effect of self-affirmation and online teaching app image on teachers' willingness to use, resulting in a significant interaction between self-affirmation and online teaching app image on teachers' willingness to use ($F(1, 220) = 5.995, p = 0.015$). Simple effects analysis showed that for the low self-affirmation group, there was still a significant difference in the effect of online teaching app image on intention to use ($F(1, 220) = 4.687, p = 0.037$). The assistant image group had a higher intent to purchase ($M = 5.985$) than the substitutor ($M = 5.212$). For high self-affirmation, the image effect was not significant ($p > 0.2$). The main effects are not significant ($ps > 0.2$) [37].

(4) Moderate mediation effect analysis. Mediated model with moderation: online teaching app image; identity threat; teacher satisfaction, moderated by self-affirmation. SPSS Process Model 8, Bootstrap, 5000 samples, 95% CI [29]. The model is significant (95% CI: $[-0.3879, -0.0191]$). Low self-affirmation: identity threat's indirect, direct effects are significant (95% CI excluding 0). High self-affirmation: identity threat's indirect effect was not significant (95% CI inclusive), and image failed to affect satisfaction (Wei Wang et al., 2022). The coefficients of the pathways in the model and their significance are reported in Figure 2.

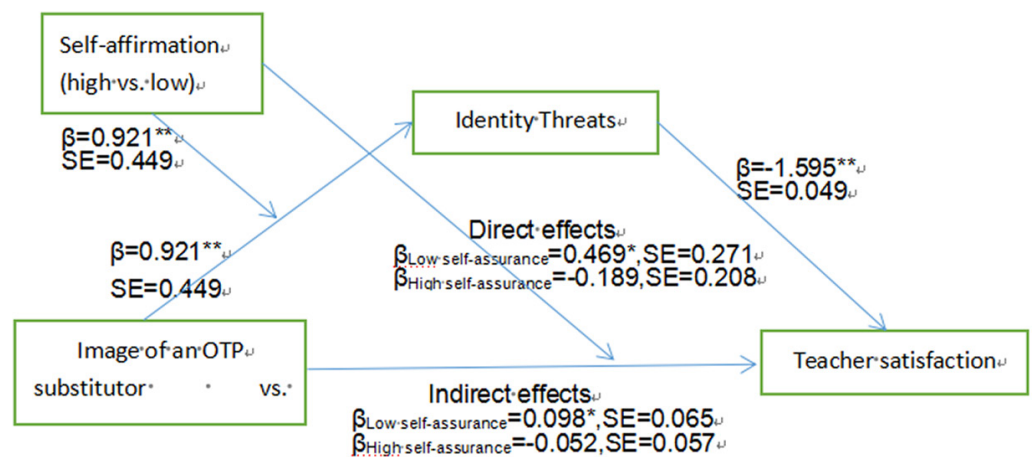


Fig. 2. Moderated mediating role of self-affirmation and online education platform image in influencing teacher satisfaction

6 CONCLUSIONS AND PROSPECTS

6.1 Research findings

In this study, three experiments were conducted to compare the effects of assistant and substitute images of OTPs on teachers' satisfaction and intention to use them.

Experiment 1 found that teachers were more satisfied with the teaching subjects (online AI teachers) in the assistant image OTP compared to the substitutor image OTP, while teachers did not show significant differences in satisfaction with the two image products in the context of teaching services provided by real teachers.

Experiment 2 further explored the mediating role of identity threat and found that teachers felt less identity threat and were thus more satisfied with the OTP of the substitutor image.

Experiment 3 introduced the self-affirmation manipulation and found that the negative effect of the OTP image disappeared when teachers had high self-affirmation, while compared to the substitutor image, the OTP assistant image was more likely to increase teachers' satisfaction and willingness to use it when teachers had low self-affirmation.

6.2 Theoretical contributions

This study explores the impact of the 'substitutor' and 'assistant' images of OTPs on teachers' satisfaction, with three main theoretical contributions.

Firstly, the study examines the OTP image, which is distinct from traditional brands. AI's role fuels debates on consumer identity. This verifies the OTP image's impact, expanding brand image classification.

Secondly, this paper explores teachers' attitudes toward OTPs, distinguishing AI roles. OTPs as 'substitutors' trigger negative attitudes. AI as an aid reduces threats. This offers a new view on AI's identity threat.

Finally, this paper explores teacher identity in the digital era. OTPs as 'substitutors' threaten teachers, but self-affirmation mitigates this. The findings support reducing new technology's identity threats.

6.3 Practical implications

First, promote AI in education and healthcare, emphasizing support, not replacement. Avoid "unmanned" or "machine." Highlight AI's assistance. Boost user willingness by portraying AI as a helper.

Secondly, identity threats affect AI image and use. Design and promotion should emphasize consumer ownership and control. Reduce the AI threat to manual work. In underdeveloped areas, focus on AI's efficiency gains.

Thirdly, self-affirmation alleviates identity threats with AI. Promote AI products with self-affirming words and scenarios. Weaken the AI threat and increase consumer willingness and satisfaction.

7 RESEARCH LIMITATIONS AND FUTURE PERSPECTIVES

This study explored teachers' attitudes toward OTPs, distinguishing between "substitutor" and "assistant" images. Future study can analyze OTP images, add

student measures, and verify long-term behavioral responses to OTP images, such as interaction and participation.

8 ACKNOWLEDGEMENT

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