

Sensitive Medical Content and Emotional Alignment: Extending Constructive Alignment in Vocational English for Medical Purposes Education

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Abstract

The Constructive alignment has been widely adopted in higher education and English for Specific Purposes (ESP) contexts; however, its affective dimension remains underexplored, particularly in culturally sensitive instructional domains. In vocational English for Medical Purposes (EMP) education, topics related to reproductive health and gender-specific physiology are professionally essential yet emotionally sensitive for young learners. This study introduces the concept of emotional alignment as an extension of constructive alignment theory and empirically tests an Affective-Mediated Curriculum Alignment Model (AMCAM). Using survey and achievement data from 312 students in three Chinese vocational medical colleges, structural equation modeling was employed to examine the relationships among sensitive content exposure, emotional discomfort, classroom engagement, perceived professional relevance, and learning outcomes. Results indicate that emotional discomfort significantly reduces classroom engagement ($\beta = -.51, p < .001$), which mediates its impact on learning outcomes ($\beta = .57, p < .001$). Perceived professional relevance significantly moderates the relationship between emotional discomfort and engagement. Findings suggest that curriculum misalignment arises not from content irrelevance but from insufficient affective mediation. The study contributes theoretically by integrating emotional alignment into constructive alignment theory and offers pedagogical implications for ESP and medical education globally.

Keywords: *Affective-Mediated Curriculum Alignment Model (AMCAM), Constructive Alignment, Emotional Alignment, English for Medical Purposes, Sensitive Content, Structural Equation Modelling, Vocational Education*

Introduction

Constructive alignment (Biggs, 1996) has become a foundational framework in curriculum design across higher education. The theory posits that effective teaching requires alignment among intended learning outcomes, instructional activities, and assessment practices. In English for Specific Purposes (ESP), alignment additionally entails matching course content with learners' professional needs (Hutchinson & Waters, 1987).

However, alignment has traditionally been conceptualized in structural and cognitive terms, largely neglecting the affective dimension of learning. This omission becomes particularly salient in vocational English for Medical Purposes (EMP) classrooms, where students are required to engage with sensitive medical topics such as reproductive health, pregnancy complications, and gender-specific anatomy. Although professionally essential, these topics

often evoke embarrassment, avoidance behaviours, and emotional discomfort among young learners. In Chinese vocational medical colleges, instructors report observable affective reactions when teaching such units. Some teachers even omit or simplify reproductive health content, arguing that unmarried students lack relevant life experience.

Review of Related Literature

Recent scholarship has increasingly emphasized the multidimensional nature of curriculum alignment beyond structural coherence. For instance, Andrade (2020) argued that alignment frameworks must incorporate learner engagement variables to account for actual instructional effectiveness. Similarly, Villarroel et al. (2021) demonstrated that alignment quality predicts learning outcomes only when student engagement is considered.

In ESP contexts, Hyland (2019) highlighted the need for discipline-sensitive pedagogy that integrates sociocultural expectations. Song and Caruso (2021) further emphasized that vocational ESP learners demonstrate stronger occupational motivation but heightened classroom anxiety in culturally sensitive units.

In medical education research, O'Connor et al. (2020) found that early exposure to reproductive health content can trigger emotional discomfort, potentially affecting knowledge retention. Likewise, Wear et al. (2021) noted that discomfort does not necessarily imply irrelevance but requires pedagogical framing.

Recent studies on affective variables in language learning have expanded beyond anxiety. Li (2020) identified embarrassment as a distinct predictor of reduced participation in EFL classrooms. Jiang and Dewaele (2022) demonstrated that culturally sensitive topics intensify emotional filtering effects in Asian contexts.

Moreover, structural equation modeling has increasingly been used to examine mediated and moderated relationships in educational settings (Kline, 2023). For example, Wang and Zhang (2022) found that professional identity moderates anxiety-performance relationships in vocational learners.

Taken together, recent research suggests: Alignment must include affective dimensions. Professional relevance can buffer emotional discomfort. Engagement mediates emotional impact on achievement.

However, no prior study has empirically integrated these elements within a constructive alignment framework in vocational EMP contexts. This study addresses that gap.

Research Questions

These practices raise a critical theoretical question: Can curriculum be considered aligned if it satisfies professional objectives but fails to align with learners' emotional readiness?

This study addresses this gap by proposing emotional alignment as a necessary extension of constructive alignment. Using empirical data from vocational EMP classrooms, the study investigates how emotional responses mediate curriculum effectiveness and whether perceived professional relevance mitigates affective misalignment.

Methodology

This study is grounded in constructive alignment theory (Biggs, 1996, 2003), which posits that effective teaching occurs when intended learning outcomes, instructional activities, and assessment practices are coherently aligned. While alignment theory has traditionally emphasized cognitive and structural coherence, recent scholarship suggests that alignment must also account for learner-level processes that influence how instruction is received and enacted. In contexts involving culturally sensitive medical content, such as reproductive health topics in vocational EMP classrooms, affective reactions may interfere with this alignment mechanism. When instructional content triggers embarrassment, anxiety, or avoidance tendencies, the alignment between curriculum design and learner engagement may be disrupted, thereby undermining learning effectiveness.

Drawing on affective filter theory (Krashen, 1985) and control-value theory of achievement emotions (Pekrun, 2006), emotional discomfort is conceptualized as a multidimensional affective construct encompassing embarrassment, anxiety, avoidance behavior, and cognitive distraction. These emotional responses are expected to function as mediating mechanisms that translate content exposure into variations in classroom engagement and subsequent learning outcomes. Specifically, exposure to sensitive medical content may heighten emotional discomfort, which in turn reduces behavioral, cognitive, and emotional engagement in classroom activities. Reduced engagement then weakens opportunities for meaningful interaction, knowledge construction, and performance achievement. Thus, classroom engagement is hypothesized to serve as a key explanatory pathway linking emotional discomfort to learning outcomes.

At the same time, vocational education contexts are characterized by strong occupational orientation. According to expectancy-value theory (Eccles & Wigfield, 2002), learners' perceptions of task utility influence motivational regulation and persistence. In medical vocational programs, perceived professional relevance may therefore buffer the negative impact of emotional discomfort. When students cognitively recognize the occupational necessity of mastering sensitive medical terminology, the detrimental effects of embarrassment or anxiety may be attenuated. Professional relevance thus operates as a moderating variable that conditions the strength of the relationship between emotional discomfort and engagement.

Integrating these theoretical perspectives, the present study proposes an Affective-Mediated Curriculum Alignment Model (see figure 1) in which sensitive content exposure increases emotional discomfort; emotional discomfort reduces classroom engagement; engagement enhances learning outcomes; and perceived professional relevance mitigates the negative influence of discomfort on engagement. This framework extends constructive alignment theory by incorporating affective and motivational mechanisms as integral components of curriculum effectiveness in culturally sensitive instructional contexts.

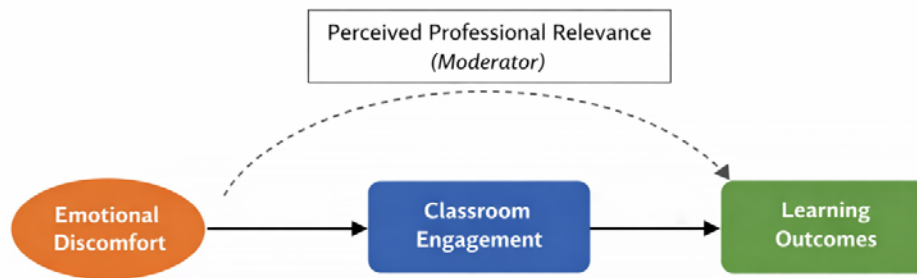


Figure 1. Affective-Mediated Curriculum Alignment Model (AMCAM). *Emotional discomfort negatively predicts engagement, which predicts learning outcomes; professional relevance moderates the path from emotional discomfort to engagement.*

Participants and Context

Participants were 312 second-year students recruited from three public vocational medical colleges in China. The sample consisted of 58% nursing majors and 42% clinical medicine majors, reflecting the typical disciplinary distribution within vocational medical programs. Female students accounted for 68% of the sample, consistent with gender patterns commonly observed in nursing-dominated cohorts. All participants had recently completed a compulsory English for Medical Purposes (EMP) instructional unit focusing on reproductive health terminology, including pregnancy-related syndromes and gender-specific clinical conditions. The instructional unit formed part of the standard EMP curriculum and was delivered over a four-week period prior to data collection.

Instruments

Emotional discomfort was assessed using an eight-item scale designed to capture four affective dimensions: embarrassment, avoidance behavior, anxiety, and cognitive distraction. Items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The scale demonstrated excellent internal consistency reliability in the present study (Cronbach's $\alpha = .92$).

Classroom engagement was measured using a six-item scale assessing behavioral, emotional, and cognitive participation in EMP instruction. The instrument yielded satisfactory reliability ($\alpha = .88$), indicating stable internal consistency across engagement dimensions.

Perceived professional relevance was assessed with a four-item scale measuring the extent to which students perceived reproductive health terminology as occupationally necessary for their future medical practice. Internal consistency reliability was acceptable ($\alpha = .86$). Learning outcomes were measured using a 30-item multiple-choice vocabulary achievement test specifically developed to assess mastery of reproductive health terminology covered in the instructional unit. The test included clinically relevant lexical items and contextualized usage questions. Internal consistency reliability, estimated using the Kuder–Richardson Formula 20 (KR-20), was .84, indicating satisfactory reliability for dichotomously scored items.

Procedure

Data collection was conducted immediately following completion of the instructional unit to ensure that emotional responses and engagement perceptions reflected authentic classroom experiences. Participation was voluntary and anonymous, and students were informed that their responses would be used solely for research purposes. No course credit or academic incentives were provided. Ethical procedures adhered to institutional research guidelines, and informed consent was obtained from all participants prior to survey administration.

Data Analysis

Data analysis proceeded in several stages. First, confirmatory factor analysis (CFA) was conducted to examine the adequacy of the measurement model and to assess construct validity. Reliability was evaluated using Cronbach's alpha and composite reliability indices, while convergent and discriminant validity were assessed using average variance extracted (AVE) and the heterotrait–monotrait ratio (HTMT).

Second, structural equation modeling (SEM) was employed to test the hypothesized relationships among sensitive content exposure, emotional discomfort, classroom engagement, professional relevance, and learning outcomes. Model fit was evaluated using multiple indices, including χ^2/df , CFI, TLI, RMSEA, and SRMR.

Finally, moderated mediation effects were examined using bootstrapping procedures with 5,000 resamples to estimate indirect effects and corresponding 95% confidence intervals. A mediation effect was considered significant if the confidence interval did not include zero.

Analysis

Preliminary Analyses

Descriptive statistics and bivariate correlations among the study variables are presented in Table 1. Sensitive content exposure was moderately and positively correlated with emotional discomfort ($r = .47, p < .001$), indicating that greater exposure to sensitive medical topics was associated with higher levels of discomfort. Emotional discomfort was negatively correlated with classroom engagement ($r = -.51, p < .001$) and learning outcomes ($r = -.38, p < .001$), suggesting that affective reactions may undermine both participation and achievement.

Table 1. Descriptive Statistics and Correlations Among Study Variables (N = 312)

Variable	M	SD	1	2	3	4	5
1. Sensitive Content	3.68	0.71	—				
2. Emotional Discomfort	3.42	0.83	.47***	—			
3. Engagement	3.51	0.76	-.28***	-.51***	—		
4. Professional Relevance	4.02	0.64	.22**	-.18*	.36***	—	
5. Learning Outcome	78.34	8.92	-.19*	-.38***	.57***	.29***	—

. $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Classroom engagement demonstrated a strong positive association with learning outcomes ($r = 0.57$, $p < 0.001$), supporting its hypothesized mediating role. Perceived professional relevance was positively correlated with engagement ($r = .36$, $p < .001$) and learning outcomes ($r = .29$, $p < .001$), while showing a modest negative association with emotional discomfort ($r = -.18$, $p < .05$). None of the intercorrelations exceeded .70, indicating that multicollinearity was not a concern.

Measurement Model

Confirmatory factor analysis was conducted to evaluate the adequacy of the measurement model (Table 2). The model demonstrated acceptable fit to the data: $\chi^2/df = 2.31$, CFI = .94, TLI = .92, RMSEA = .065, and SRMR = .054. These indices meet recommended thresholds for structural equation modeling (e.g., CFI and TLI $> .90$; RMSEA $< .08$).

Table 2. Confirmatory Factor Analysis Results

Construct	CR	AVE	Factor Loadings Range
Emotional Discomfort	.91	.63	.68–.84
Engagement	.88	.59	.65–.82
Professional Relevance	.86	.61	.70–.81

Model Fit:

$\chi^2/df = 2.31$

CFI = 0.94

TLI = 0.92

RMSEA = 0.065

SRMR = 0.054

All standardized factor loadings were statistically significant and ranged from .65 to .84, exceeding minimum recommended levels. Composite reliability (CR) values ranged from .86 to .91, indicating strong internal consistency. Average variance extracted (AVE) values were all above .50, supporting convergent validity. Discriminant validity was confirmed using the HTMT criterion ($< .85$). Collectively, these findings suggest that the constructs demonstrate satisfactory reliability and validity, justifying subsequent structural model testing.

Structural Model Results

Structural equation modeling was performed to test the hypothesized relationships (Table 3). Sensitive content exposure significantly predicted emotional discomfort ($\beta = .47$, $p < .001$), supporting Hypothesis 1. Emotional discomfort negatively predicted classroom engagement ($\beta = -.51$, $p < .001$), supporting Hypothesis 2. In turn, classroom engagement positively predicted learning outcomes ($\beta = .57$, $p < .001$), supporting Hypothesis 3. Emotional discomfort also exerted a direct negative effect on learning outcomes ($\beta = -.22$, $p = .004$), supporting Hypothesis 4 and suggesting partial mediation. The interaction term between emotional discomfort and perceived professional relevance significantly predicted classroom engagement ($\beta = .21$, $p = .006$), indicating that professional relevance moderated the relationship between discomfort and engagement (see figure 1). Specifically, when professional relevance was perceived as high, the negative impact of emotional discomfort on engagement was attenuated.

The structural model accounted for 42% of the variance in learning outcomes ($R^2 = .42$), indicating substantial explanatory power within the vocational EMP context.

Table 3. Structural Model Path Coefficients

Path	β	SE	p
Sensitive Content $\rightarrow$ Emotional Discomfort	.47	.05	<.001
Emotional Discomfort $\rightarrow$ Engagement	-.51	.06	<.001
Engagement $\rightarrow$ Learning Outcome	.57	.07	<.001
Emotional Discomfort $\rightarrow$ Learning Outcome	-.22	.08	.004
Interaction (ED $\times$ PPR $\rightarrow$ Engagement)	.21	.07	.006

$$R^2 (\text{Learning Outcome}) = .42$$

Structural equation modeling was conducted to test the hypothesized relationships (see Table 3). Figure 1 presents the path coefficients and illustrates the mediating role of classroom engagement as well as the moderating effect of perceived professional relevance.

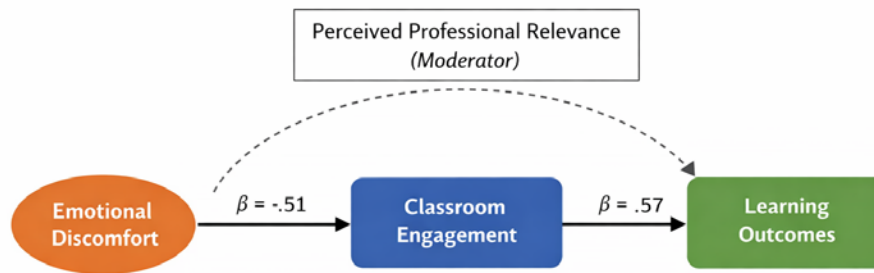


Figure 1. Affective-Mediated Curriculum Alignment Model (AMCAM). Emotional discomfort negatively predicts engagement, which predicts learning outcomes; professional relevance moderates the path from emotional discomfort to engagement.

Mediation Analysis

Bootstrapping procedures with 5,000 resamples were conducted to examine the mediating role of classroom engagement (Table 4). The indirect effect of emotional discomfort on learning outcomes via engagement was statistically significant ($\beta = -.29$), and the 95% confidence interval did not include zero $[-.38, -.19]$. This finding confirms that classroom engagement significantly mediates the relationship between emotional discomfort and learning outcomes.

Because the direct path from emotional discomfort to learning outcomes remained significant, the mediation can be interpreted as partial rather than full mediation. These results indicate that emotional discomfort undermines learning outcomes both directly and indirectly by reducing classroom engagement.

Table 4. Bootstrapping Mediation Analysis

Effect	Indirect Effect	95% CI	Result
ED → Engagement → LO	-.29	[-.38, -.19]	Significant

Summary of Findings

The combined findings from Tables 1–4 collectively substantiate the proposed Affective-Mediated Curriculum Alignment Model and provide a theoretically coherent explanation of how sensitive medical content influences learning outcomes in vocational EMP classrooms. The correlation patterns (see Table 1) offer preliminary evidence that emotional discomfort functions as a pivotal intervening construct linking sensitive content exposure to both diminished engagement and reduced academic performance. The strong association between classroom engagement and learning outcomes underscores the centrality of participatory processes in sustaining constructive alignment within specialized language instruction.

The confirmatory factor analysis results (see Table 2) further validate the distinctiveness and internal coherence of the latent constructs, supporting the conceptualization of emotional discomfort, engagement, and professional relevance as empirically separable yet theoretically interrelated dimensions. This measurement robustness provides a reliable foundation for examining structural relationships and reinforces the legitimacy of extending alignment theory to incorporate affective components.

The structural model findings (see Table 3) reveal that emotional discomfort operates as a critical affective mechanism that disrupts engagement processes, thereby weakening instructional effectiveness. Importantly, the moderating effect of professional relevance demonstrates that affective misalignment is not deterministic; rather, it can be mitigated when learners cognitively appraise sensitive content as professionally meaningful. This interaction effect suggests that alignment is not solely a matter of curricular coherence but also of perceived occupational value. Finally, the bootstrapped mediation analysis (see Table 4) confirms that classroom engagement serves as a significant explanatory pathway through which emotional discomfort influences learning outcomes. The significant indirect effect indicates that affective disruption undermines achievement primarily by reducing behavioral and cognitive participation. The persistence of a direct effect further suggests partial mediation, highlighting the multifaceted nature of affective influence in specialized language education.

Taken together, the results provide strong empirical support for the proposed Affective-Mediated Curriculum Alignment Model. Emotional discomfort emerges as a central affective mechanism linking sensitive content exposure to diminished engagement and academic performance, while perceived professional relevance functions as a buffering factor that mitigates this negative process. The results advance constructive alignment theory by empirically demonstrating that emotional alignment constitutes a necessary condition for effective curriculum implementation in culturally sensitive instructional contexts. The findings suggest that affective responses to sensitive medical content are not peripheral classroom phenomena but structurally embedded factors that shape engagement and achievement in vocational EMP education.

Findings and Discussion

The present study sought to examine how sensitive medical content influences learning outcomes in vocational EMP classrooms through effective and motivational mechanisms.

The findings provide robust empirical support for the proposed Affective-Mediated Curriculum Alignment Model and extend constructive alignment theory by demonstrating that emotional responses are not peripheral classroom reactions but structurally embedded components of instructional effectiveness. Specifically, exposure to sensitive reproductive health content significantly increased students' emotional discomfort, which in turn reduced classroom engagement and ultimately undermined vocabulary achievement. The results suggest that alignment in specialized language education cannot be conceptualized solely in cognitive or curricular terms; rather, it must also incorporate the affective experiences of learners.

Consistent with affective filter theory and control-value theory, emotional discomfort emerged as a pivotal mediating construct. Students who experienced embarrassment, anxiety, avoidance tendencies, and cognitive distraction were less behaviorally and cognitively engaged in classroom activities. This reduction in engagement significantly predicted lower academic performance, confirming that engagement functions as a key explanatory pathway linking emotion and achievement. Importantly, the mediation was partial rather than full, indicating that emotional discomfort exerts both direct and indirect influences on learning. This dual-path effect highlights the multifaceted role of affect in vocational language instruction and underscores the necessity of addressing emotional processes explicitly within curriculum implementation.

Another notable contribution of this study lies in identifying perceived professional relevance as a buffering mechanism. The moderating effect indicates that when students cognitively recognize the occupational necessity of mastering sensitive medical terminology, the negative impact of emotional discomfort on engagement is attenuated. In vocational medical contexts, professional identity and career orientation appear to provide motivational resources that counteract emotional inhibition. This finding aligns with expectancy-value theory and suggests that affective misalignment can be mitigated through enhanced perception of task utility. Thus, curriculum alignment in vocational settings involves not only coherence among objectives, instruction, and assessment, but also alignment between instructional content and students' emerging professional identities.

The findings also have important contextual implications. In many Asian educational contexts, discussions of reproductive health may be culturally sensitive, particularly among young adult learners without marital experience. The observed discomfort does not necessarily imply pedagogical inappropriateness; rather, it reflects the intersection of cultural norms and professional training demands. Avoiding such topics may create short-term emotional comfort but risks long-term professional inadequacy. Therefore, instructional design should aim to balance emotional sensitivity with professional authenticity. Strategies such as structured clinical framing, anonymized case-based discussion, and gradual terminology exposure may help reduce embarrassment while preserving curricular rigor.

Overall, this study advances theoretical and empirical understanding of how affective processes interact with curriculum alignment in specialized language education. By integrating emotional discomfort, engagement, and professional relevance into a unified explanatory framework, the research demonstrates that effective EMP instruction requires emotional alignment alongside cognitive and structural coherence. In culturally sensitive instructional contexts, acknowledging and strategically managing students' emotional responses is essential for sustaining engagement and optimizing learning outcomes.

Pedagogical Implications

The findings of this study carry important pedagogical implications for vocational EMP instruction, particularly in contexts where culturally sensitive medical content is unavoidable. First, curriculum alignment should be reconceptualized to include emotional alignment as a deliberate instructional objective. Teachers should anticipate potential emotional discomfort when introducing reproductive health or gender-related terminology and design instructional scaffolding accordingly. Rather than omitting sensitive units, educators can adopt structured clinical framing strategies that emphasize professional necessity and medical objectivity, thereby shifting students' focus from personal discomfort to occupational responsibility. Second, enhancing perceived professional relevance appears to be a viable intervention pathway. Explicitly linking sensitive terminology to real-world clinical scenarios, licensing requirements, or future workplace communication demands may buffer the negative effects of embarrassment and anxiety by activating students' professional identity. Third, classroom engagement should be actively cultivated through supportive participation formats, such as small-group discussions, case-based simulations, and anonymous response systems, which may reduce public performance pressure while maintaining interactional depth. Finally, teacher training programs in vocational medical education should include preparation for managing affective dynamics in specialized language classrooms. Developing instructors' sensitivity to emotional cues and equipping them with strategies for navigating culturally delicate topics can help sustain engagement without compromising curricular rigor. Taken together, these pedagogical implications suggest that effective EMP instruction requires not only linguistic expertise but also affect-informed instructional design that harmonizes professional authenticity with learners' emotional readiness.

Limitations and Future Research

Despite the theoretical and empirical contributions of this study, several limitations should be acknowledged, which also provide directions for future research. First, the cross-sectional design precludes causal inferences; while structural equation modeling allows for testing hypothesized relationships, longitudinal or experimental studies would be necessary to confirm the temporal dynamics of emotional discomfort, engagement, and learning outcomes. Second, the study relied exclusively on self-report measures for emotional discomfort, engagement, and perceived professional relevance, which may be subject to social desirability bias or common method variance. Future studies could incorporate behavioral observations, physiological indicators of emotional response, or teacher ratings to triangulate findings. Third, the sample was drawn from three vocational medical colleges in China, limiting generalizability across cultural or institutional contexts. Replication in diverse educational and linguistic settings would clarify the cross-cultural applicability of the Affective-Mediated Curriculum Alignment Model. Fourth, while the study focused on reproductive health terminology as a representative sensitive content unit, other sensitive medical domains—such as mental health, sexual health, or end-of-life care—may elicit different affective and engagement responses. Future research could examine the boundary conditions of emotional alignment across varied medical content areas. Finally, the moderation effect of perceived professional relevance was explored at the individual level; additional studies could investigate contextual or instructional factors, such as teacher scaffolding strategies or classroom climate, to determine how environmental variables interact with learners' affective responses. Addressing these limitations would strengthen the theoretical generalizability and practical utility of integrating emotional alignment into vocational EMP curriculum design.

Conclusion

This study provides both theoretical and practical insights into the role of emotional responses in vocational English for Medical Purposes (EMP) education, particularly in the context of culturally sensitive medical content. By introducing the concept of emotional alignment as an extension of constructive alignment theory, the research demonstrates that learners' affective experiences—encompassing embarrassment, anxiety, avoidance, and cognitive distraction—serve as critical mechanisms linking exposure to sensitive content with classroom engagement and learning outcomes. The findings highlight the mediating role of engagement and the moderating function of perceived professional relevance, suggesting that affective misalignment can be mitigated when students recognize the occupational utility of the content. Theoretically, this study advances curriculum alignment literature by integrating emotional and motivational dimensions into the traditionally cognitive-focused model, offering a more holistic framework for understanding how specialized language curricula impact learning in vocational contexts. From a practical standpoint, the results underscore the importance of designing EMP curricula that balance professional authenticity with students' emotional readiness. Educators are encouraged to implement scaffolding strategies, case-based discussions, and professional framing to reduce affective barriers while maintaining rigorous learning objectives. Additionally, teacher training should include sensitivity to learners' emotional responses, fostering classroom environments that support engagement even when content is culturally or personally challenging.

Finally, the study identifies avenues for future research, including longitudinal and experimental designs to establish causal relationships, exploration of diverse sensitive content areas, and examination of contextual or instructional factors that interact with learners' affective responses. By addressing these directions, future studies can further refine the theoretical and practical applicability of emotional alignment, ultimately enhancing the effectiveness of vocational EMP instruction across varied educational and cultural settings.

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