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The Influence of Process Drama Scenario Construction on Adolescents' Identity Narratives: A Focus on the Expression of Identity Confusion

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Abstract. Identity construction in adolescents always implies dynamic changes in the positioning, social roles, and future projections. Identity confusion may manifest itself via conflicting narratives, changes of position, and uncertain future projection. The technique of process drama provides a fictional space for distancing via fictitious roles, conflicts, and scenarios, which allows expressing identity experiences indirectly. In total, the study involved 90 participants aged between 13 to 17 years who were divided into low conflict, escalating conflict, and multiple roles conditions. Audio, video, textual narratives, and interviews were recorded simultaneously. MacBERT was applied in order to detect identity conflicts, completeness of narratives, reflective thinking, and future projections. Additionally, a gated multimodal fusion model was applied for the combination of textual, behavioral, and contextual cues. It was found that escalating conflict condition and multiple roles increased expressive readiness, depth of narratives, and reflective engagement while expressive safety was not compromised by these conditions. Overall, a gated multimodal model provided the following performance: Accuracy = 0.806, Macro F1 = 0.805, and AUC = 0.879. The best predictive contribution was provided by self-correction, contradiction markers, and conflict intensity.

Keywords: Process drama, identity confusion, identity narrative, multimodal modeling, adolescent education

1. Introduction

Identity formation during adolescence is a process of rapid reorganization through ongoing interactions between personal values, social roles, peer relations, and future projections. Identity confusion could, hence, be articulated in terms of the narrative process through unstable positioning of the self, inconsistent values, and lack of clarity regarding future orientation. Identity integration and confusion are also highly intertwined with adolescents' social and emotional adjustment processes such that identity articulation is both developmentally significant and psychologically complex [1]. Literature has already pointed out the ongoing significance of family, peer groups, and the wider social environment, while questionnaires and retrospective interviews offer only limited insights into the linguistic and behavioral responses of adolescents emerging spontaneously from

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particular contexts [2]. The fictional distance of process drama helps explore identity confusions and conflicts through speech, physical action, and storytelling. Different types of conflict and role relations are hence introduced and analyzed using narrative text analysis, movement analysis, and multimodal modeling to investigate their effects on expressive readiness, depth of narration, and reflection.

2. Literature review

2.1. Adolescent identity narratives

The concept of narrative identity is about the creation of a continuous self through organizing experience, making sense of events, and connecting past to future. Narrative coherence, agency, and meaning-making happen incrementally across the course of adolescence [3]. Identity confusion can emerge through changes in position, loose causality, self-corrective statements, and instability in future orientation. All of these are affected not only by the process of inner exploration but also by the themes included in the narratives themselves. Identity commitment, autobiographical reasoning, and exploration are all affected by the narratives and measures used [4]. Focusing solely on scale scores may miss structural changes within expression, while contradictory linkages, perspective-taking, and temporal orientation may give more clues into the ongoing identity exploration by adolescents.

2.2. Process drama scenarios

Process drama is a method that builds an open fictional context by means of role taking, improvisation, and building dramatic situations. There is always some distance created between the fictional role and one's real-life personality which decreases the stress level in sharing sensitive personal experiences. Constant role work might enhance participation, expression, and involvement in a situation; however, there are different activity structures [5]. The principle of embodied learning suggests that movement, language, and spatial interaction together create meanings [6]. Youth theatre is linked to relational growth, self-discovery, and positive experience [7]. But there are several factors that affect psychological distance and cognitive strain – they are intensity of conflict, role switching, and ending openness.

2.3. Computational identity analysis

Identity-confusion stories include lexical, causal, affective, behavioral, and interpersonal content which makes continuous human interpretation problematic. MacBERT is capable of generating context-based semantic representations by means of Chinese-specific pretraining and more efficient masking algorithms, allowing self-referentiality, contradiction, causation, and future orientation to be extracted [8]. In multimodality, one can incorporate spoken words, gestures, postures, and motion traces into temporal and spatial relationships in order to obtain behavioral data which cannot be represented in text form [9]. Human narrative coding could be used for supervised labeling while textual semantics, postures, and situation variables will be aligned in time. Thus, it becomes possible to compare the contribution of each modality without human interpretation which avoids linguistic contradictions or bodily contraction being considered as psychological problems.

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3. Experimental methods

3.1. Experiment and data collection

A total of 90 adolescents aged 13 to 17 were recruited after guardian consent and participant assent. They were randomly assigned to low conflict, escalating conflict, or multiple role groups, with 30 participants in each condition. Each participant completed three 60 min process drama sessions using the same identity exploration theme, facilitation procedure, and basic storyline. The low conflict group used stable roles and mild identity conflicts. The escalating conflict group gradually increased value based choices and interpersonal tension, while the multiple role group emphasized role rotation, perspective shifts, and open endings. Identity confusion, expressive safety, and reflective engagement were measured before and after the sessions. Video, audio, personal narratives, and semi structured interviews were collected, together with speaking frequency, participation duration, withdrawal, and discomfort responses. All data were anonymized and aligned across modalities using participant codes, session numbers, and timestamps.

3.2. Identity narrative text model

Audio recordings were transcribed using automatic speech recognition and manually corrected against the videos. Written narratives and interviews were segmented, anonymized, and timestamped. Two coders rated identity conflict, narrative completeness, reflective depth, and future orientation on four levels, with agreed results used as supervised labels [10]. MacBERT then extracted contextual semantic representations and generated classification probabilities for the four indicators, as shown in Equation 1.

$$h_i = \mathrm{MacBERT}(x_i)_{[CLS]} \tag{1}$$

$$p_i^{(k)} = \mathrm{Softmax}\left(W_k h_i + b_k\right)$$

Here, x_i denotes the ith narrative unit, h_i represents the semantic vector, k refers to the four narrative indicators, and $p_i^{(k)}$ represents the corresponding classification probability. The model was jointly trained using weighted multitask cross entropy, as shown in Equation 2.

$$\mathcal{L}_{text} = -\frac{1}{N} \sum_{i=1}^{N} \sum_{k=1}^{4} \alpha_k \sum_{c=1}^{4} y_{ikc} \log p_{ikc} \tag{2}$$

Here, N denotes the number of text samples, c represents the level category, y_{ikc} denotes the human coded label, p_{ikc} represents the model predicted probability, and α_k is the loss weight assigned to each task.

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3.3. Multimodal fusion model

MediaPipe was used to extract key points from the shoulders, torso, and upper limbs to calculate movement magnitude, body contraction, interpersonal distance, and participation duration. These behavioral features were timestamp-aligned with text semantic vectors. Experimental condition, session number, and role-transition frequency were included as contextual features [11]. These variables formed the text feature h^T, movement feature h^M, and contextual feature h^C. The gated fusion network dynamically adjusted the contribution of each modality according to individual samples. The calculation process is shown in Equation 3.

$$g_i=\sigma(W_g[h_i^T;h_i^M;h_i^C]+b_g) \tag{3}$$

$$z_i=g_i\odot W_T h_i^T+(1-g_i)\odot W_M h_i^M+W_C h_i^C$$

Here, g_i denotes the gating weight, z_i represents the final fused representation, and $\odot$ indicates element wise multiplication. The fused representation was then used to predict expressive willingness, narrative depth, and reflective engagement. A multitask loss function was used for joint optimization, as shown in Equation 4.

$$\mathcal{L}_{multi}=-\frac{1}{N}\sum_{i=1}^{N}\sum_{r=1}^{3}\beta_r\sum_{c=1}^{C_r}y_{irc}\log\mathrm{Softmax}(W_r z_i+b_r)_c \tag{4}$$

Here, r denotes the three prediction tasks, C_r represents the number of categories for each task, and β_r is the corresponding task weight. The 90 participants were divided into training, validation, and test sets containing 60, 15, and 15 participants, respectively. Accuracy, Macro F1, and AUC were used to evaluate model performance. In addition, 1,000 bootstrap iterations were conducted to estimate the mean absolute SHAP values and their 95 percent confidence intervals.

4. Results

4.1. Scenario effects on identity narratives

Clear differences were observed among the three scenario conditions in expressive willingness, narrative depth, and reflective engagement, as shown in Table 1. Changes in expressive willingness were 0.22±0.38, 0.66±0.43, and 0.71±0.45 for the low conflict, escalating conflict, and multiple role groups, respectively. The between group difference was significant, with $F(2,87)=12.30$, $p<0.001$, and $\eta2=0.220$. Narrative depth increased from 1.84±0.41 in the low conflict group to 2.35±0.43 in the escalating conflict group and 2.52±0.39 in the multiple role group. The corresponding effect size reached 0.339. Reflective engagement was highest in the multiple role group at 2.61±0.38, indicating that role transitions and perspective shifts were accompanied by more developed reflective narratives. Expressive safety scores were 4.18, 4.09, and 4.12 across the three groups, with no significant difference, $p=0.737$. Higher narrative participation therefore did not coincide with a clear reduction in perceived expressive safety.

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Table 1. Comparison of identity narrative indicators across three process drama scenario conditions

Indicator	Low conflict group	Escalating conflict group	Multiple role group	F(2,87)	p	η^2
Expressive willingness change	0.22 ± 0.38	0.66 ± 0.43	0.71 ± 0.45	12.30	<0.001	0.220
Narrative depth	1.84 ± 0.41	2.35 ± 0.43	2.52 ± 0.39	22.31	<0.001	0.339
Reflective engagement	1.79 ± 0.40	2.18 ± 0.42	2.61 ± 0.38	31.49	<0.001	0.420
Expressive safety	4.18 ± 0.45	4.09 ± 0.47	4.12 ± 0.44	0.31	0.737	0.007

4.2. Model performance and feature contribution

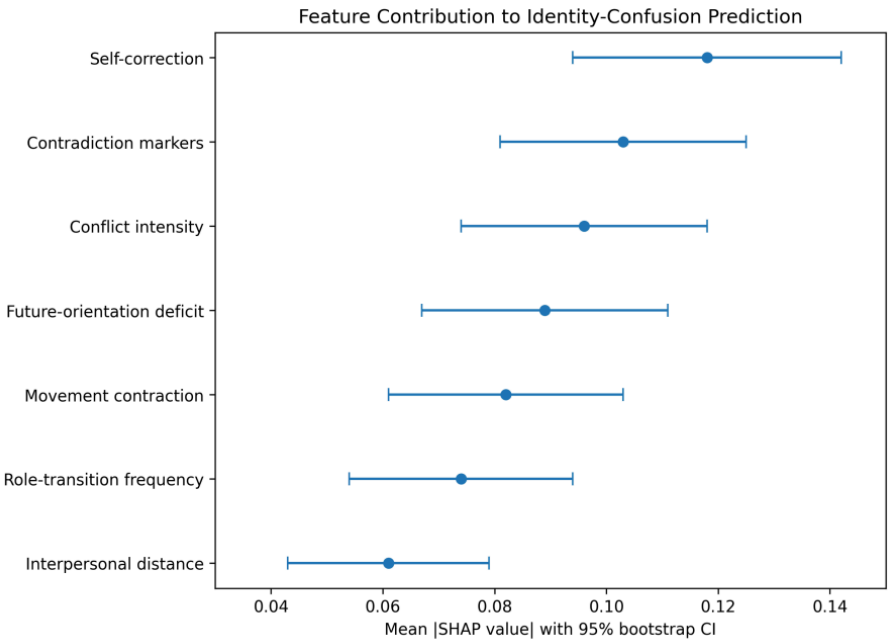


Figure 1. SHAP contributions of multimodal features to identity confusion prediction with 95 percent bootstrap confidence intervals

On the independent test set, the MacBERT text model achieved an Accuracy of 0.756, a Macro F1 of 0.742, and an AUC of 0.823. After movement and contextual information were incorporated, the multimodal model achieved values of 0.806, 0.805, and 0.879, respectively. When movement features were removed, Macro F1 decreased to 0.774. Removing contextual variables reduced Macro F1 to 0.786. These results indicate that semantic information, bodily behavior, and drama scenario features all contributed to the recognition of identity confusion patterns. SHAP was further applied to interpret the model inputs. As shown in Figure 1, self correction produced the highest mean absolute SHAP value at 0.118, followed by contradiction markers at 0.103, conflict intensity at

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0.096, future orientation deficit at 0.089, and movement contraction at 0.082. The 95 percent confidence intervals were estimated through 1,000 bootstrap iterations. The intervals for self correction and contradiction markers remained generally higher than that of interpersonal distance. Linguistic self revision and contradictory structures therefore showed more stable predictive contributions, while movement and contextual features provided complementary information.

5. Discussion

The findings illustrate significant distinctions made by scenario structures in influencing the expression of identity confusion. The low-conflict scenario provided relatively high expressive safety while yielding insufficient activation of identity-related contradictions. With growing levels of conflict, there was an increasing amount of pressure due to values and role relationships, which resulted in higher causal coherence and stronger identity conflict. The multiple role scenario provided the highest level of reflective activity, indicating that the transition between roles encouraged adolescents to organize their experience through multiple perspectives. Expressive safety did not decrease significantly, meaning that an increase in scenario complexity yielded no additional pressure. In turn, the multimodal model worked better than the text-only model, illustrating that the identity confusion was captured both linguistically, physically, and contextually. SHAP analysis showed that self-correction and contradiction were the two main factors, whereas movement contraction and interpersonal distance provided behavioral data.

6. Conclusion

The experiment focused on examining the impact of low conflict, conflict escalation, and multiple roles process drama scenarios on adolescent identity confusion narratives. MacBERT and multimodal fusion model were applied to incorporate the data from the linguistic, behavioral and contextual aspects. It was found out that conflict escalation led to more explicit representation of identity contradictions and more deep narratives. In addition, multiple roles scenarios added to perspective changing and reflection without significant decrease in expressive safety. The multimodal fusion model performed better compared to the text-only model which proves that the behavioral and contextual data may serve as a complement to linguistic evidence to detect identity confusion. The developed experimental-computational framework makes it possible to conduct a more sophisticated analysis of changes in identity narratives. At the same time, it provides the basis for scenario design and identity education by process drama.

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