

Teamwork or Working as a Team? Exploring the Dimensions of Team Reflexivity and Its Impact within the Primary Care Dental Services: A Case Study

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ABSTRACT

Teamwork is an integral part of dentistry, and team reflexivity (TR) is an essential process that impacts team outcomes in real teams.

Aims and objectives: This study explores the perception of the dental team about the dimensions of TR and team psychological empowerment (TPE) and evaluates the correlation between TR and TPE.

Method: The literature review provided widely validated psychometric measures for the dependent and independent variables TR and TPE. Following the initial piloting, an online questionnaire scored using the Likert scale was distributed to the entire primary care dental staff within four counties in the Republic of Ireland. One-way analysis of variance (ANOVA), correlation, and regression analyses was performed to detect statistical significance at $\alpha = 0.05$ significance level.

Results: There was a statistically significant correlation ($p < 0.001$) between TR and TPE. Feedback-seeking behavior (FSB) and overall TR have a statistically significant association with years in service ($p = 0.01$ and 0.042 , respectively). This finding implies the longer the years-in-service, the lower the FSB and overall TR. Reflection on processes (ROP) and error analysis (EA) have a statistically significant correlation ($p = 0.011$ and 0.048 , respectively) with TPE. Autonomy (A) was the only dimension of TPE that had a statistical correlation ($p = 0.006$) with TR.

Conclusion: Team reflexivity in primary care dental settings has significant implications for dental TPE, and both TR and TPE have reciprocal effects and can be mutually influential. Overall, this study submits that making the primary care dental setting a learning environment significantly impacts dental team empowerment. In addition, this study suggests the need for an appropriately led guided approach to TR toward state-funded primary care dental TPE.

Keywords: Communication, Education, Future dental work force, Management, Psychosocial impact, Satisfaction.

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INTRODUCTION

Dentistry is a dynamic and ever-evolving team-based profession. The importance of teamwork in many organizations, particularly in complex, dynamic healthcare environments, has been widely reported.^{1,2}

Effective teamwork contributes to organizational success and offers the healthcare team a sense of pride, enhanced performance, and better healthcare outcomes.³

In addition, effective teamwork can be affected by team-related variables such as team composition and diversity,⁴ and team task interdependence.⁵ Similarly, effective communication, leadership style, and behavior can influence teamwork and team learning behaviors in primary health care.^{6,7}

Task interdependence, shared objectives, and reflexivity are the main characteristics of a real healthcare team.^{1,3} Although real teams are not without problems, they create more opportunities for interdependent working, better coordination of efforts, more consistent team interactions, and collective learning. Furthermore, team potency, cohesiveness, and resilience are enhanced, and real teams tend to adapt and thrive better in challenging healthcare environments.³

Generally, teams comprise individuals that collectively form a group dynamic influenced by internal and external factors. The primary care dental team includes dentists, dental hygienists, dental nurses, and dental nurse/office administrators. Members of the

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dental team are skilled professionals with highly structured tasks, differentiated team roles, and patient-centered shared objectives. Interestingly, despite some significant differences, the relationship between the dental team members has been closely related to marital relationships.⁸

However, the assumption that “teamwork” can be achieved by merely having a coalition of skilled individuals with structured tasks, and differentiated roles may be misguided from theoretical and practical points of view.⁹ Therefore, there is a need for strategic and consistent approaches to teamwork within the dental team.

Team reflexivity is an essential team process that significantly influences team inputs and healthcare outcomes such as

high-quality care, patient satisfaction, and TPE.^{10,11} Therefore, it is crucial to understand the impact of TR as a process that promotes teamwork within the primary care dental setting.

Team reflexivity has been widely researched and described as an iterative behavioral process involving reflection, planning, and adaptation.^{12,13}

West¹⁴ defined TR as the extent to which group members overtly reflect upon and communicate about the team's objectives, strategies, and processes and adapt them to current or anticipated circumstances.

Summarily, TR is a relational activity involving formal and informal, verbal and nonverbal team interactions. Such activity involves planning, questioning, exploratory learning, and analyzing the team's objectives and processes, creating new awareness and developing the ability to adapt to changing circumstances. In dentistry, like in other teams, such reflective activity could occur before procedures (pre-action), during procedures (in-action), or after team performance (post-action).^{15,16} While reflexivity can occur at the individual level, it can also be a group and practice regulatory process.¹⁷

Similarly, empowerment has been empirically examined both at the individual level and team level. While individual empowerment is based on individual cognition, team empowerment emerges from shared perception and collective cognitions.^{18,19}

Team psychological empowerment involves increased task motivation due to the team member's collective, positive assessments of their organizational tasks, which vary as a function of team context, inputs, processes, and outcomes.^{20,21} Kirkman and Rosen²² described the dimensions of TPE as potency (P), meaningfulness (M), autonomy (A), and impact (I). Though independent yet these four dimensions combined additively create the overall construct of TPE.^{21,22}

Although TR and its relationships with team outcome variables such as effectiveness, performance, and efficiency are well documented, there has been limited research on the impact of TR on TPE within primary care dental services.¹⁻³

This study explores some dimensions of TR, which are particularly relevant to the operations of the primary care dental team, such as ROP, reflection on outcomes (ROO), FSB, and EA. Similarly, this study also explores the four dimensions of TPE, which are potency (P), meaningfulness (M), autonomy (A), and impact (I).

AIMS AND OBJECTIVES

This study draws upon existing literature on TR and its impact on teamwork and explores the dimensions of TR and its effect on TPE.

Objectives

- To explore the perception of the dental team about the dimensions of TR and TPE
- To evaluate the correlation between the dimensions of TR and TPE
- To explore the differential effects of the dimensions of TR and TPE

METHOD

This study is primarily a deductive process to gain an objective perspective of TR in primary care dental services within four midland counties in Ireland and its effect on TPE.

The targeted population was 53, comprising dentists (15), dental hygienists (6), dental nurses (24), and dental nurses/office administrators (8), all members of the primary care dental team working in the same organization in four Irish counties.

The author assumes that the demographic characteristics and the conditions surrounding the dental team within this study are generalizable to other state-funded primary care dental teams across the country.

A quantitative methodology was applied to describe the relationship between the dependent TPE and the independent TR variables. To deduce a valid psychometric measure for this study, the author reviewed measures used in previous studies. The shortened version of Kirkman and Rosen²¹ applied by Kirkman and Rosen²² was adopted to measure the four dimensions of TPE. These dimensions are potency (P), meaningfulness (M), autonomy (A), and impact (I).

Four out of eight dimensions of TR on the scale developed by Savelsbergh et al.²³ were measured because of their relevance to the primary care dental team. These measures were considered appropriate for this study because of their validity and robustness as it captures several dimensions of TR previously applied in other quantitative analysis.

Following initial piloting, a survey questionnaire (Appendix 1) scored using the five-point Likert scale was distributed to the entire dental staff within four Irish counties. Items in the questionnaire were randomized to reduce question order bias. The research questionnaire was anonymized and distributed to the dental team through SurveyMonkey. Ethical approval was granted by the Irish management institute social research ethical committee.

Data were accessed online and imported into the IBM SPSS (IBM statistical package for social sciences) version 26 for statistical analysis.

The TR dimensions (ROO, ROP, FSB, and EA) and TPE (P, M, A, and I) were calculated by averaging the scores for the items that correspond to each of these indicators. The overall TR and TPE were calculated by summing the scores for the corresponding dimensions, e.g., the score for TR was calculated by adding the scores for EA, ROP, ROO, and FSB. Hence, the maximum attainable score for TR and TPE is 20.

The Cronbach's α coefficient determined the reliability of the study measures, and a value greater than 0.7 was considered a measure of good reliability. Descriptive statistics for continuous variables were summarized using mean \pm standard deviation, while categorical variables were summarized using counts and percentages.

Linear regression analysis was used to determine the correlation between the TR, TPE, and their dimensions and measure the magnitude and significance of the relationship between TR, TPE, and their dimensions. *P*-values < 0.05 were considered statistically significant.

Data Availability Statement

Raw and derived data supporting the findings of this study are available from the corresponding author (A.O.) on request.

RESULTS

Forty-one staff (77%) participated by fully completing the questionnaire, with 100% (6 of 6) participation for dental hygienists, 87.5% (21 of 24) for dental nurses, and 75% (6 of 8) for dental nurses/office administrators. However, only 53.3% (8 of 15) of dentists participated.

About 63.4% had >20 years-in-service experience with 24.4% and 12.2% for those with 10–20 and 0–5 years-in-service, respectively. There was no staff with 5–10 years-in-service experience. Figure 1 summarizes the distribution of staff grades relative to the years-in-service experience.

All the measures used for the study had a Cronbach’s α score >0.7, which confirms the high reliability and validity of the measures used to evaluate TR and TPE.

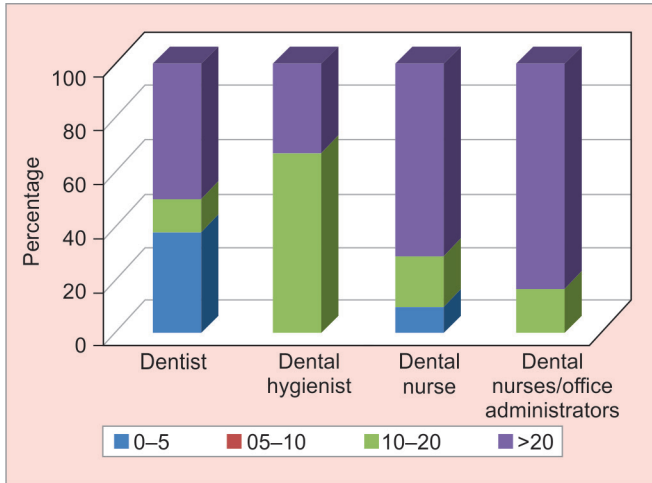


Fig. 1: Distribution of staff grades and years-in-service experience

Table 1 shows the descriptive statistics and the association between staff grades and all the dimensions used in the study. Staff grades did not show a statistically significant association ($p > 0.05$) with overall TR and TPE scores as well as the dimensions of TR and TPE (see Table 1).

Table 2 highlights the association between the years-in-service experience and all the dimensions and measures used in the study. These findings revealed that the years-in-service experience showed a statistically significant association with FSB ($p = 0.010$) and TR score ($p = 0.042$). The average FSB score was significantly higher in participants with 0–5 years-in-service experience than in participants with >20 years and 10–20 years-in-service experience. Also, the average TR score was significantly higher in participants with 0–5 years of experience. This result suggests that team members with shorter years-in-service experience tend to seek feedback more than other team members. However, the average TPE score was not significantly different between the years-in-service groups ($p > 0.05$).

Regression analysis was used to examine the dependent TPE and independent variables TR predictability. One-way Anova and correlation analysis (see Table 3) revealed a high statistically significant positive correlation between TR and TPE ($r = 0.643$, $p < 0.001$), which indicates higher levels of TR are associated with higher levels of TPE.

Table 4 reports the regression analysis between the dimensions of TR and their effect on overall TPE. This result showed there was a statistically significant association between ROP and TPE (Std. $\beta = 0.724$, $p < 0.05$). Similarly, there was a statistically significant

Table 1: Association of staff grades and the dimensions of TR

	All (N = 41)	Dentist (N = 8)	Dental hygienist (N = 6)	Dental nurses (N = 21)	Dental nurse/Office administrator (N = 6)	p-value
EA	3.05 (1.10)	3.34 (0.84)	2.71 (1.23)	3.08 (1.26)	2.88 (0.68)	0.739
ROP	2.79 (0.86)	2.97 (0.45)	2.62 (1.13)	2.77 (1.02)	2.75 (0.35)	0.907
ROO	2.78 (0.94)	3.04 (0.81)	2.28 (1.06)	2.83 (1.04)	2.78 (0.58)	0.517
FSB	2.57 (0.85)	2.88 (0.71)	2.17 (1.17)	2.62 (0.85)	2.67 (0.42)	0.476
P	3.51 (1.08)	3.69 (0.84)	4.08 (0.80)	3.48 (1.15)	2.83 (1.21)	0.237
M	3.46 (0.92)	3.75 (0.53)	3.75 (0.42)	3.38 (1.11)	3.08 (0.92)	0.478
A	2.91 (0.93)	3.25 (0.60)	3.00 (0.95)	2.86 (1.09)	2.58 (0.74)	0.607
I	3.16 (0.87)	3.31 (0.37)	3.58 (0.66)	3.02 (1.04)	3.00 (0.84)	0.511
TR	11.2 (3.55)	12.2 (2.43)	9.78 (4.44)	11.6 (3.79)	11.1 (1.68)	0.599
TPE	13.0 (3.34)	14.0 (1.79)	14.4 (2.08)	12.7 (4.07)	11.5 (2.70)	0.385

Table 2: Association between years-in-service experience and dimensions of TR

	All (N = 41)	0–5 (N = 5)	10–20 (N = 10)	>20 (N = 26)	p
EA	3.05 (1.10)	4.15 (0.80)	2.85 (1.16)	2.91 (1.04)	0.053
ROP	2.79 (0.86)	3.45 (0.67)	2.77 (0.89)	2.66 (0.85)	0.174
ROO	2.78 (0.94)	3.67 (0.24)	2.53 (0.95)	2.71 (0.95)	0.069
FSB	2.57 (0.85)	3.60 (0.49) A	2.33 (0.90) B	2.52 (0.72) B	0.010
P	3.51 (1.08)	4.00 (1.17)	3.95 (0.86)	3.25 (1.09)	0.122
M	3.46 (0.92)	3.90 (0.74)	3.65 (0.82)	3.31 (0.97)	0.326
A	2.91 (0.93)	3.40 (0.42)	2.95 (0.86)	2.81 (1.02)	0.438
I	3.16 (0.87)	3.20 (0.45)	3.40 (0.74)	3.06 (0.97)	0.579
TR	11.2 (3.55)	14.9 (1.79) A	10.5 (3.67) AB	11.0 (3.19) B	0.042
TPE	13.0 (3.34)	14.5 (2.00)	13.9 (2.76)	12.4 (3.65)	0.282

Note: Post-hoc pairwise comparison results are denoted by letters. Groups with different letters have means that are significantly different at the 0.05 level

Table 3: Regression analysis: TR (independent variable) and TPE (dependent variable); ANOVA

ANOVA						
Model		Sum of squares	df	Mean square	F	Sig.
1	Regression	150.057	1	150.057	26.718	0.000 ^b
	Residual	213.418	38	5.616		
	Total	363.475	39			

Dependent variable: TPE ^bPredictors: (constant); TR

Coefficients						
Model		Unstandardized coefficients		Standardized coefficients		Sig.
		B	Std. error	Beta	t	
1	(Constant)	6.715	1.323		5.075	0.000
	TR	0.577	0.112	0.643	5.169	0.000

Dependent variable: TPE

Table 4: Regression analysis: dimensions of TR on overall TPE

Model	Unstandardized coefficients		Standardized coefficients		Sig.
	B	Std. error	Beta	t	
(Constant)	5.447	1.238		4.398	0.000
EA	1.572	0.767	0.517	2.051	0.048
ROP	2.818	1.046	0.724	2.694	0.011
ROO	-1.225	1.252	-0.346	-0.978	0.334
FSB	-0.638	0.908	-0.163	-0.702	0.487

Table 5: Regression analysis: dimensions of TPE on overall TR

Model		Unstandardized coefficients		Standardized coefficients		Sig.
		B	Std. error	Beta	t	
1	(Constant)	2.045	1.647		1.241	0.223
	P	0.132	0.561	0.040	0.235	0.815
	M	1.019	0.848	0.264	1.201	0.238
	A	1.990	0.685	0.524	2.906	0.006
	I	-0.207	0.748	-0.051	-0.276	0.784

association between EA and TPE (Std. $\beta = 0.517, p < 0.05$). However, there was no statistically significant positive association between ROO, FSB, and TPE ($p > 0.05$). These results suggest that ROP and EA positively impact TPE within the dental team, with ROP being more statistically significant.

Table 5 reports the regression analysis on the effect of TPE dimensions on the overall TR coefficient. These results show there was a statistically significant positive association between autonomy (A) and TR (Std. $\beta = 0.524, p < 0.05$). There was no statistically significant positive association between potency (P), meaningfulness (M), impact (I), and TR ($p > 0.05$). This finding suggests that relative to the other dimensions of TPE, autonomy (A) positively impacts the level of TR within the dental team.

DISCUSSION

Over three quarters (77%) of the targeted population completed the questionnaire, which suggests a high interest and relevance of the study to the entire dental team. However, it is difficult to

ascertain the reasons for the relatively lower participation (53.3%) among dentists and its implications for this study.

Staff grades have no statistically significant relationship with the dimensions of TR and TPE and overall TR and TPE. Mean and standard deviation values for autonomy (A) and impact (I) were highest for the dental hygienist. In contrast, the dental nurse/office administrators were found to have the lowest values for all the dimensions of TPE, resulting in dental nurses/office administrators having the lowest overall TPE.

The shorter the years-in-service experience, the higher the FSB and overall TR. This finding implies an inverse relationship between FSB, overall TR, and the years-in-service experience. Hence, the more prolonged the years-in-service experience, the more routine the task in primary care dental services becomes, and the less likely staff to engage in TR.

Team reflexivity has been reported to be less critical when the task becomes coordinated and routine, as complex and nonroutine tasks in an ever-changing environment potentially elicit the need for higher TR.^{15,24}

Similarly, the TPE value was highest in the 0–5 years-in-service group compared with 10–20, and >20 years-in-service experience indicates that the longer the years-in-service experience, the lower the TPE values. Factors such as job security and rewards are positively associated with psychological empowerment.²⁵ A national public health service survey attributed 82% of staff satisfaction with job security.²⁶ It would be expected that longer years-in-service and associated job security would contribute to perceived empowerment. Contrarily, this study has found that the longer the years-in-service experience, the lower the TPE values. Therefore, beyond job security, reward, and recognition, other factors such as perceived procedural justice, team member's relationship, value congruence, and leadership type are crucial factors influencing TPE.²⁵

Task characteristics, high workload, structural, and physical qualities of the work environment can contribute to psychological stressors and influence TPE.^{27,28}

The observed statistically significant correlation between TR and TPE indicates that higher levels of TR are associated with higher levels of TPE. Therefore, both TR and TPE have reciprocal effects and can be mutually influential.

The statistically significant correlation between ROP, EA, and overall TPE with p -values 0.011 and 0.048, respectively, suggests that ROP and EA positively impact TPE within the dental team, ROP being

more statistically significant. ROP involves collective considerations of team goals, strategies, and processes. In dentistry, this can be in the form of structured preoperative briefing and reflection focusing on the individuality of each patient and treatment requirements for the day. ROP is essential because it prepares the team for the task, enhances the shared mental model, increases situational awareness, and sets the stage for optimal teamwork.²⁹

Dentistry, like other team-based healthcare specialties, is prone to experiencing setbacks and clinical errors, which, if not appropriately analyzed, can result in more adverse consequences.³⁰

Team reflexivity offers a protective effect by enhancing team control and support, resulting in a significant reduction in team-level emotional exhaustion, improved psychological wellbeing, enhanced resilience, and the ability to adapt to setbacks and adversity.^{30,31} Therefore, learning from setbacks and errors as a team is essential. Dental TR must be given due consideration regardless of any limiting factor to enhance patient-centered care in dentistry.^{32,33}

Based on findings from this study, the primary care dental team should embrace a higher level of ROP and EA because collectively discussing team goals, strategies, and analyzing errors offer the dental team the opportunity for collective learning. This can be central to creating sustainable reflective practice, taking advantage of TR's positive effect on teamwork, and ultimately improving patient care.

The dimensions of TPE have a differential impact on TR as autonomy (A) was the only dimension of TPE with a statistically significant correlation with TR. This finding suggests that relative to the other dimensions of TPE, autonomy (A) positively impacts the level of TR within the dental team.

There is an association between autonomy and perceived higher quality of patient care.³¹ Perceived autonomy in teams allows team members to feel that they have some say in how and when they complete their job tasks, enhancing their experience of psychological empowerment.³⁴ However, the level of autonomy in teams can be influenced by organizational support, leadership, and peer support, with each potentially having independent effects on a team member's psychological empowerment. Although autonomy has a unique influence on team effectiveness, it is not sufficient for team empowerment. Hence, highly effective teams must not only be autonomous, but members must also experience potency, meaningfulness, and impact to avail full benefit of TPE.^{19,35}

Variance in the levels of TR and TPE among the dental team suggests the need for a guided approach to TR toward team empowerment.¹² This is significant for the dental team with shared objectives, high tasks, and structural interdependence to accrue the full benefits of TR and TPE. This informs why good leadership is vital to the dental team, as leadership can significantly influence teams' attitudes, values, team processes, and outcomes.^{28,36}

According to the Irish Dental Council's Scope of Practice document, dentists are positioned within the dental team to provide leadership.³⁷ Therefore, as leaders, dentists should facilitate collaborative learning and reflective practice to improve professional practice.

The barriers to dentists fulfilling the role of leaders have been reported as mostly personal such as lack of enthusiasm toward leadership issues, lack of confidence in their skills, time constraints, family obligations, and lack of communication skills.^{38,39} The lack of adequate leadership ability and training has also been reported in medicine and dentistry.^{8,40} Summarily, this suggests that dentists need to be empowered and perceive themselves as empowered.

This study focused primarily on TR and TPE. It is not exhaustive as the study only explored four dimensions of TR. Furthermore, it did not consider the impact of other possible primary care dental team inputs and team processes on team outcomes. Beyond the years-in-service experience and grades, other factors within the team might impact TR and TPE. Contextual and organizational factors can have differential effects on one or more dimensions of TPE. Therefore, future research needs to explore further TR and the effect of contextual variables such as leadership and organizational structure within primary care on team outcomes.

Although there is no silver bullet upon which teams can be empowered within any organization, this study provides an understanding of TR as a team empowering process within the dental team and its implication for improved leadership and teamwork in the dental team, which requires a guided and appropriately led approach to TR is required. In addition, this study informs the need for primary care dentists to rise to their statutory and ethical responsibilities in accordance with dental regulatory authority's guidelines and adhere to team empowerment principles to facilitate a conscious and guided approach to TR within the primary care dental team.

CONCLUSION

Overall, this study submits that making the primary care dental setting a learning environment significantly impacts dental team empowerment. TR in primary care dental settings has significant implications for dental TPE, and both TR and TPE have reciprocal effects and can be mutually influential. The dimensions of TPE have a differential impact on TR. Likewise, the dimensions of TR has a differential impact on overall TPE.

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Appendix 1: Survey questionnaire

What best describes your current role in the dental team/dentistry?

- Dentist
- Dental Hygienist
- Dental Nurse
- Dental Nurse/Office administrator

How long have you been employed in the HSE dental services?

- 0–5 years
- 5–10 years
- 10–20 years
- >20 years

	<i>Strongly agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly disagree</i>
As a team we often discuss our team's work methods and approaches. ROP					
In our team, we check what we can learn from our achievements. ROO					
We seek feedback on our methods and approaches. FSB					
In the event of a mistake/error, the team tries together to analyze what caused it. EA					
As a team, we regularly discuss how effective we collaborate. ROP					
In our team, we check if our actions have brought in expected results. ROO					
We analyze our performance in accordance with other dental teams in the organization. FSB					
In our team, we think that it is useful to analyze errors. EA					
Our team often reconsiders our working procedures. ROP					
In our team, we evaluate the results of our actions. ROO					
We ask feedback from team members, patients, and other service users. FSB					

	<i>Strongly agree</i>	<i>Agree</i>	<i>Neutral</i>	<i>Disagree</i>	<i>Strongly disagree</i>
If something has gone wrong, the team takes the time to think it through. EA					
We regularly take time to reflect on how we can improve our working methods. ROP					
After an error has occurred, it is analyzed thoroughly in this team. EA					
My team has confidence in itself in providing its services. P					
My team can get a lot done when it works hard. P					
My team believes that its services are significant. M					
In my team, we can select different ways to do our work and achieve team's objectives. A					
My team has a positive impact on patients and service users. I					
My team believes that it can be very productive. P					
My team feels that its tasks are worthwhile. M					
In my team, we collectively determine how things are done in the team. A					
My team performs tasks that matter to this organization. I					
My team feels that its work is meaningful. M					
In my team, we make our own choices/decisions without being told by management. A					
My team makes a difference in this organization. I					

A, autonomy; EA, error analysis; FSB, feedback seeking behavior; I, impact; M, meaningfulness; P, potency; ROO, reflection on outcome; ROP, reflection on processes

