Critical factors in public sector collaboration in Malaysia
Leadership, interdependence, and community

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Abstract
Purpose – Collaboration in a public sector is a key to solving complex social problems. This research studies the mandated public sector collaboration in Malaysia. The purpose of this paper is to identify the success factors that are critical to effective collaboration outcomes.

Design/methodology/approach – The factors identified were transformational leadership, interdependence, and community. A questionnaire was constructed and distributed to 500 government officers involved in public sector collaboration in Malaysia. An integrated framework was developed and analyzed using a structural equation modeling approach.

Findings – The key findings of this study are transformational leadership that drives interdependence and collaboration outcomes and community that plays a critical role in influencing interdependence, and collaboration outcomes. The theoretical and practical implications of the findings have been discussed. The limitations of this research have been highlighted.

Originality/value – This study through the integrated model has identified the key success factors of public sector collaboration. The empirical results lend credibility to the governance of public sector collaboration.

Keywords Malaysia, Public sector management, Success factors, Mandated public sector

Introduction
The move to transform a public sector from a fragmented structure to a collaborative one has been the global movement for most of the public sectors around the world. This is because a fragmented structure and stand-alone agency responses impede the public sector from solving complex social problems and individual public agencies have no ability to solve these issues (Mabey and Morrell, 2011). In fact, complex social collaborations with civil society at the center have become a reality in advanced countries like Canada (Tello-Rozas et al., 2015). In this research, collaboration means coherence in government that seems to prevail as a key tool in solving unmanageable societal problems and the term public sector denotes government ministries and agencies (McGuire, 2006). The term public sector collaboration is defined as a combination of horizontal and vertical co-ordinated processes of thinking and action in multi-public sector agency arrangements that are working toward a common goal such as solving complex social problems and improving public service delivery (Ferro and Sorrentino, 2010). At this point, it is useful to understand the differences between coordination and collaboration as these terms may be used interchangeably. According to State Services Commission (2008, p. 7) of New Zealand, coordination means “the sharing of information, resources and responsibilities to achieve a particular outcome” and collaboration refers to “arrangements that encourage joint decision-making with regard to direction-setting, planning, implementation and review.” A comprehensive definition of collaboration, which is used in this study, has been proposed by Norris-Tirrell and Clay (2010, p. 2) and according to them, it is “an intentional, collective approach to address public
problems or issues through building shared knowledge, designing innovative solutions, and forging consequential change. When used strategically, collaboration produces positive impacts, stakeholders become committed to policy or program change, and capacity of individuals and organizations strengthen to effectively work together.” According to Norris-Tirrel and Clay, collaboration is a process.

Since achievement of outcomes is a hallmark of collaboration, we define the term collaboration outcome. As proposed by Arino (2003), collaboration outcome is the “degree of accomplishment of the partners’ goals, be these common or private, initial or emergent (outcome performance), and the extent to which their pattern of interactions is acceptable to the partners (process performance)” (p. 76). Keeping in mind the nature of collaboration (predominantly, between government agencies), collaboration outcome consists of value creation and goal achievement (dimensions of outcome performance) and re-evaluation (dimension of process performance). According to Austin and Seitnidi (2012), value creation through collaboration is “the transitory and enduring benefits relative to the costs that are generated due to the interaction of the collaborators and that accrue to organizations, individuals and society.” (p. 727). Goal achievement refers to attaining general and specific goals of each public sector agency due to collaboration (Arino, 2003). Value creation and goal achievement specify the final outcome of collaboration, while re-evaluation captures the effectiveness of the process of collaboration (Arino, 2003). Bryson et al. (2015) have indicated value creation and re-assessment as important indicators of outcomes. The collaboration outcome that is captured in this study is the perceived outcome. In this research, the success factors and the perceived outcomes have been derived from the perspectives of public sector officers who are involved in the design, implementation, and governance of the collaboration process. The use of perceived outcome is not new. For example, Chen (2010) has used perceived outcome to analyze inter-organizational collaborations for children and family service delivery at California; Littlecott et al. (2017) have used it to explore the success of public health collaboration initiatives in UK; and May and Winter (2007) have used it to assess the effectiveness of collaborative arrangement between municipalities and governmental and non-governmental agencies in Denmark.

Public sector collaboration is required for the following reasons: aspiration to coordinate horizontally as well as vertically to eliminate policy redundancies; to efficiently use scarce resources; to create synergies by bringing together different stakeholders in a particular policy area; and to avoid fragmented services to citizens (Christensen and Lægreid, 2007). There is much to be learnt about the management principles of public sector collaboration because of the many unanswered questions in this field (O’Leary and Vj, 2012). O’Leary and Vj highlight that theories explaining public sector collaboration must be revised and updated. There is scarcity in the public sector collaboration literature that utilizes strategic management perspective in explaining collaboration. This leads to high failure rates of collaboration due to inability of practitioners to strategically manage public sector collaboration (Muijs et al., 2011; Vos and Wagenaar, 2012). Poor performance of public sector involved in collaboration occurs when the managers do not recognize the success factors in managing the collaboration that lead to successful delivery of essential services and solving complex social problems (Muijs et al., 2011). Unfortunately, there is a lack of studies that look into critical success factors to ensure favorable outcomes in a collaborative environment.

Therefore, there is a need to look into the factors that contribute toward successful outcomes in public sector collaboration. The success factors that need further research include: transformational leadership (Currie et al., 2011; Dudau, 2009); community role (Cankar and Petkovšek, 2013); and interdependence (McNamara, 2014; Muijs et al., 2011; Sambasivan et al., 2013). Thus, it is important to understand how these factors within public sector collaboration influence the perceived outcomes of collaboration. Ansell and Gash (2008) and Emerson et al. (2012), through their collaborative governance frameworks, have
proposed the roles of leadership and interdependence in ensuring the effectiveness of public sector collaborations. However, they did not validate the frameworks empirically. In essence, the fundamental question addressed in this research is: what are the success factors that enable different ministries/agencies to collaborate effectively and solve complex social problems? This research basically deals with mandated public sector collaboration, a form that is prevalent in Malaysia.

Mandated public sector collaboration refers to a collaborative environment with at least some of the collaboration partners having no option but to collaborate. Mandated public sector collaboration particularly involves active involvement of public agencies with participation from the community or the private sector (O’Leary and Vij, 2012). Countries such as the UK, Australia, Norway and Malaysia are noted to practice mandated collaboration. Globally, the occurrences of many social problems have caused the rise of civil unrest, exerting pressures on public sector to address these social problems (Avina, 2011). In fact, the Malaysian Government has been facing problems whereby the nation’s performance in areas such as crime, corruption, education, and income distribution has fallen behind pre-2010 and has needed improvement in order to achieve the social goals encapsulated in Vision 2020 (Prime Minister’s Department, 2010).

Theoretical framework and hypotheses development

**Theoretical foundations**

This study captures the critical factors that drive collaborations and help them succeed. Based on the studies by Ansell and Gash (2008) and Emerson et al. (2012), three of the important factors are leadership, interdependence, and community (civic) engagement. Collaborations draw from social exchange theory. Social exchange theory claims that relationships rest upon social interactions which involves exchange of interaction to create relationships and achieve the desired outcomes (Cropanzano and Mitchell, 2005; Di Domenico et al., 2009). The essence of the social exchange theory is “social exchange comprises actions contingent on the rewarding reactions of others, which over time provide for mutually and rewarding transactions and relationships” (Cropanzano and Mitchell, 2005, p. 890). According to Keast et al. (2014), from the social exchange perspective, the collaboration is the result of organizations recognizing the interdependence of problems and the benefits of developing reciprocal relationships aimed at solving them. Given the importance of interactions, the social exchange theory has inspired the development of interactive approach within the collaboration framework (Kooiman and Bavinck, 2013).

Six exchange resources have been identified by researchers. These are love, status, information, money, goods, and services (Cropanzano and Mitchell, 2005). Any collaboration involves exchange of resources. For example, in marriage collaboration between partners, the exchange that is relevant is love; collaboration between political parties may involve exchange of status, money, and information. Our research deals with collaboration between public sector, private sector, and community to achieve societal goals. Therefore, two exchange resources between collaboration partners that are relevant in this research are information and services.

One of the important drivers of public sector collaboration is transformational leadership (Konorti, 2012; Mabey and Morrell, 2011). Malaysia, through its National Transformation Program, has insisted on transformational leadership and strong collaboration between the partners (agencies, ministries, private sector, NGOs, and community) as the fundamental requirements to achieve the social outcomes (Prime Minister’s Department, 2010). In this research, we specifically address transformational leadership as an important driver of public sector collaboration. Based on the transformational leadership theory as outlined by Bass and Avolio (1997), the characteristics of a transformational leader that are relevant to public sector collaboration are: focusing on important priorities and goals; creating an...
ethical climate – this is important since the purpose of public sector collaboration is for solving social problems; promoting strong collaboration between partners; and encouraging partners to work for the common good and achieve the desired outcomes. At this juncture, it is interesting to analyze the question: why transformational leadership?

Transformational leadership has been subjected to criticisms by researchers despite its merits. Some of the merits of transformational leadership that have been highlighted by empirical research are being effective at the organizational, industrial and national levels; emphasizing on common vision; and supporting change (Lee, 2014). Major criticisms pertaining to transformational leadership are a strong heroic bias of transformational leaders (Tourish and Pinnington, 2002). The critics mainly highlight the dark sides of transformational leaders. Bass and Avolio (1997, p. 15) refers to the unethical transformational leadership as “pseudo-transformational.” There is a danger that transformational leaders are autocratic and undemocratic; followers risk fulfilling leader’s vision that can be deceptive, impractical, and over ambiguous; and ambiguity in measuring and explaining the effectiveness of transformational leadership (Tourish and Pinnington, 2002). In order to implement the transformation program effectively, the Prime Minister of Malaysia set up a central monitoring and training agency called “Pemandu” (Performance Management and Delivery Unit) to guide the implementation of the transformation programs and remove the bottlenecks that may hinder the implementation process. The head of this unit reports directly to the Prime Minister. This unit ensures that the demerits of transformational leadership are eliminated. At this point, it is useful to compare transformational style with collaborative leadership. According to Ardoin et al. (2015), there are many characteristics that are common between these two styles. However, charismatic nature of transformational leadership plays an important role in countries like Malaysia (Siddiquee, 2007). Malaysians revere their leaders and tend to follow them. Therefore, in the context of Malaysia the transformational leadership is more appropriate.

In this research, social exchange and transformational leadership theories assist us in deriving the framework. The framework has been formulated by linking the following constructs: transformational leadership, interdependence (goal, task, resource, reward, and accountability), community, and collaboration outcomes. The framework is given in Figure 1.

![Figure 1. Framework with hypothesized relationships](image-url)

Note: H5 – mediation hypothesis
Hypotheses development

Transformational leadership and interdependence. Leaders inspire and communicate a common vision to encourage public sector officers to work together to achieve set targets as supported by transformational leadership theory (Dudau, 2009). These transformational leaders enable the achievement of policy goals for solving social problems by creating a collaborative environment in public sector collaboration (Dudau, 2009). This can be achieved through constant anchoring of the collaboration partners to the collaboration goals (Wang et al., 2011). Transformational leaders become the glue that sticks the collaboration partners together by making things happen beyond what each of the individual agencies are able to make happen by themselves (Dudau, 2009; Wang et al., 2011). Transformational leaders can make a positive difference by pursuing goals through different means, creating positive cultures, clarifying mission, as well as influencing followers and steering organizations to more productive and high performing outcomes (Dudau, 2009; Wallace and Tomlinson, 2010). This is vital to collaborative governance. According to Ansell and Gash (2008), even under mandated collaboration, interdependence among the collaboration partners is critical to achieve the targeted outcomes. Literature related to private sector clearly states four dimensions of interdependence: goal, task, resource, and reward (Sambasivan et al., 2013; Van Vijkeijken et al., 2002). According to Osborne (2000), mutual accountability (referred to as accountability interdependence) between the actors of collaboration is critical in public administration. Therefore, we have included accountability interdependence as a fifth dimension of interdependence.

The role of transformational leaders eventually leads the collaboration partners to advocate a point of view that they can contribute to the common good of the public sector collaboration (Maddock, 2011). The common good creates goal interdependence between the collaboration partners. These partners will seek resources non-available from other partners to help in achieving the common goals that create resource and reward interdependence (Mitsuhashi and Greve, 2009; Nemati et al., 2010). Relatively, the encouragement from the transformational leaders for the collaboration partners to work collectively to achieve common goals also leads to task interdependence, i.e. exchange information and/or means between collaboration partners (Wang et al., 2011). Reward interdependence also occurs in collaboration when the success of collaboration partners is made dependent on each other by the transformational leaders in solving complex social problems and achieving common targets (Wang et al., 2011). Accountability interdependence is important in public sector collaboration as each partner is held accountable for the achievement of common goals and individual goals (Nemati et al., 2010). Therefore, it is hypothesized that the role of transformational leaders is to create goal, task, resource, reward, and accountability interdependence as a fifth dimension of interdependence.

H1. Transformational leadership is positively related to interdependence.

Transformational leadership and collaboration outcome. Based on transformational leadership theory, transformational leaders have been recognized to make a positive difference by pursuing different goals through different means, creating positive cultures, clarifying mission, influencing followers, and steering organizations to more productive and high performing outcomes (Dudau, 2009; Wallace and Tomlinson, 2010). These leaders are said to make available a true sense of purpose for the members as well as the collaboration which energizes these members to achieve goals (Konorti, 2012). Besides, the transformational leaders offer individualized considerations that allow collaboration members to grow and mature (Konorti, 2012). In turn, the members of collaboration provide greater value to the organization and its stakeholders by striving to achieve goals of the
collaboration (Konorti, 2012). These abilities of transformational leaders to guide and steer collaboration partners are said to significantly influence collaboration outcomes (Smith et al., 2011). In light of the above arguments, it is hypothesized as follows:

**H2.** Transformational leadership is positively related to collaboration outcomes.

**Interdependence and collaboration outcomes.** Collaboration partners as members of a collaborative network are typically interdependent to achieve outcomes (O'Leary and Vij, 2012). The relationship between interdependence and collaboration outcome has been explained using social exchange theory (Sambasivan et al., 2013). Solving social problems for the community is the common goal for the collaboration partners. Since goal interdependence reflects the way in which goal attainment of one partner is influenced by goal attainment of others, collaboration partners have to work together to achieve successful outcomes (O'Leary and Vij, 2012).

Past literature has highlighted that an individual agency or a group of public agencies in public sector collaboration are interdependent to perform tasks and achieve targets (O'Leary and Vij, 2012). Public agencies are also interdependent due to their accountability to the general public (Kudo, 2008) and are collectively answerable to the top of the bureaucratic hierarchy for achieving common goals of collaboration (O'Leary and Vij, 2012). Thus, interdependence has a direct impact on the outcomes as the public agencies are mandated to work together for achieving goals in collaboration (Rogers and Weber, 2010). Based on the above arguments, it is hypothesized as follows:

**H3.** Interdependence is positively related to collaboration outcomes.

**Role of community.** Public sector collaboration is said to focus on tackling social crises with the involvement of public agencies, non-profit entities, community, and voluntary organizations as main partners although private sector sometimes does get involved (Cankar and Petkovšek, 2013; O'Leary and Vij, 2012). Generally, community in public sector collaboration consists of the general public, NGOs, and community groups. However, the current research includes private sector’s role under the community group since the involvement of private sectors in Malaysia is not as significant as in countries such as the USA.

Past literature has identified three main community roles that are important in ensuring successful public sector collaboration outcomes. First, it is noted by Co and Barro (2009) that the community reacts to social crises by demanding change from the public sector and providing feedback to improve the quality of life. The community, either as individuals or in groups, through various mediums, demands for actions by the government to address urgent social problems. The government works collaboratively to obtain suggestions and opinions from the community through various mediums for the implementation of collaboration programs (Co and Barro, 2009). Second, community plays the role by expecting accountability from the public sector collaboration to justify actions and decisions. The community also expects transparency from the collaboration members in being open about the actions and the decisions taken (Co and Barro, 2009).

Finally, the community including the private sector provides support in the form of resources, financial aid, and moral support that contributes to the success of public sector collaboration (Glaser and Denhardt, 2010). Furthermore, the community is also involved in the act of participating in collaboration activities that contribute to the success of the public sector collaboration. In conclusion, community role consists of demands and feedback; accountability and transparency; and support and participation.

The community seeks accountability and transparency from the public agencies which encourage them to work interdependently (Co and Barro, 2009). Eventually, this requires the public agencies to work cohesively in keeping each other informed for public reporting on collaboration outcomes. On the contrary, community plays a crucial role in providing their...
support and active participation to ensure successful collaboration outcomes (Avina, 2011). For example, neighborhood watch programs prevalent in Malaysia and community crime-prevention education can indicate the active participation of local community in keeping the level of crime low. The hypotheses to capture the roles of community are as follows:

\[ H4a. \] Community role (demand and feedback) is positively related to interdependence and collaboration outcomes.

\[ H4b. \] Community role (accountability and transparency) is positively related to interdependence and collaboration outcomes.

\[ H4c. \] Community role (support and participation) is positively related to interdependence and collaboration outcomes.

**Mediation role of interdependence.** Interdependence is believed to mediate the relationship between transformational leadership and outcome. Transformational leadership has been hypothesized to be positively related to interdependence \((H1)\). Interdependence has been hypothesized to increase achievement of favorable outcome in public sector collaboration \((H3)\). This relationship has been hypothesized based on past literature (O’Leary and Vij, 2012; Rogers and Weber, 2010). Based on the above arguments, the mediation role of interdependence can be hypothesized as follows:

\[ H5. \] Interdependence mediates the relationship between transformational leadership and collaboration outcome.

**Methodology**

**Study location – a justification**

The past two decades have witnessed ever increasing demands from the citizens of Malaysia for improvements in the quality and quantity of public services (Prime Minister’s Department, 2010). It was at this time that the Malaysian Government introduced Government Transformation Program (GTP) which required collaboration between public agencies to fulfill demands of society for a better social environment (Prime Minister’s Department, 2010). Although collaborations seems to prevail as the key tool in solving unmanageable societal problems (McGuire, 2006), collaborations are unable to survive and achieve expected outcomes (Vos and Wagenaar, 2012). Low ratings received by Malaysian Public Service in recent international and regional comparisons as well as serious problems arising in the areas of crime (Sidhu, 2005), corruption (Hui et al., 2011), student outcomes (Prime Minister’s Department, 2010), living standards (Harun and Jalil, 2013), rural basic infrastructure, and urban public transportation (Prime Minister’s Department, 2010) indicate that reforms have failed to boost efficiency, competence, and accountability within the public sector (Prime Minister’s Department, 2010; Siddiquee, 2007). The Malaysian Government has initiated two major initiatives to make GTP successful. They are: instill the value of public service and importance of tackling social problems through several motivational and training programs to its officers and make public sector pay and promotions more objective and reliable with a robust performance appraisal system (Siddiquee, 2007). The emphasis of current study is on the public sector collaborations in Malaysia and the study is timely.

**Study approach, population, and sample size**

This study uses the survey approach to collect data. According to Lee et al. (2011), survey is a widely used approach in public sector research. The survey instrument used in the survey research with a small sample enables researchers to assess population attitudes, perceptions, and opinions about particular social issues, as well as factual knowledge.
The basic objective of this research is to identify the critical factors that lead to perceived outcomes from the perspectives of government officers who are directly and indirectly involved in the collaboration process. Since we intend to generalize the findings, the most suitable approach is the survey research (Lee et al., 2011). Lee et al. have indicated five problems that are typical of sample surveys. They are small-scale studies, heavy reliance on a single data collection mode, questionable sample selection procedures, and suspect sample frame quality. Since one of the author works in one of the central agencies, it was not difficult to get the accurate sampling frame and the required information from the government. The data collection was done using e-mail and by directly handing the instrument to the potential respondents.

The population for this study includes all public officers who represent the federal ministries, departments, and agencies in Malaysia involved in public sector collaboration. The sampling frame for this research was the listing of public officers posted in federal ministries, departments, and agencies obtained from Public Services Department. The total number of officers involved in the collaboration (directly or indirectly) was 22,259 and they were employed at different ministries/agencies. Based on the sample size calculator, we arrived at a sample size of 376 and finally, because of problems related to non-response and/or missing data, we selected a sample size of 500. A questionnaire was developed and administered to all the 500 officers selected at random from the sampling frame. The officers from the different ministries respond to the items in the questionnaire based on their perceptions. The problems indicated by Lee et al. (2011) have been minimized by carefully choosing the sampling frame and sample respondents, using multiple modes of data collection, and using a sample size more than what is recommended.

**Measures**

Table I gives the details of each construct used in this study. The items under each dimension of the construct were adapted from established studies. The constructs in this study were transformational leadership (idealized influence, inspirational motivation, individualized consideration, and intellectual stimulation), interdependence (task, goal, reward, resource, and accountability), community – demands and feedback, community – accountability and transparency, community – support and participation, and collaboration outcomes (goal achievement, value creation, and re-evaluation). It is important to note that the outcome is the perceived outcome. A copy of the questionnaire can be obtained from the corresponding author.

**Pilot test and the administration of questionnaire**

A pilot test with 30 officers in management and professionals involved in planning, formulating, and implementing public policies were chosen. These officers were the heads of
the departments, directors, and under-secretaries in ministries. Some minor changes were made to the “wording” in some of the items under transformational leadership to reflect agreement with the terms used by Malaysian officers. Before making changes to the terms, written permission was obtained from the developers of the construct and its items.

The questionnaire was distributed to 500 officers who were selected at random from the sampling frame. Out of 500, 405 officers responded (response rate – 81 percent). In all, 13 questionnaires were rendered unusable because of many missing items. Finally, we were left with 392 (effective response rate – 78.4 percent) filled questionnaires that were taken for further analyses.

Handling common method variance
The responses for the questionnaire survey in this study were from a single source. Furthermore, the dependent and central explanatory variables were perceptual measures that were obtained from a single respondent. This can cause common method variance. We performed Herman one-factor test (Podsakoff et al., 2003) and common latent factor test (MacKenzie et al., 2011). Based on the results of the tests: Harman one-factor test resulted in the factor explaining 38.68 percent of total variance. Although it is indicated that there is no agreed cut-off point, but values under 50 percent is acceptable for the reduced effect of common method variance (MacKenzie et al., 2011; Podsakoff et al., 2003); common latent factor test indicated that all the delta values were less than 0.2 (MacKenzie et al., 2011). Combining the results of both the tests, it can be concluded that the effect of common variance in this study is minimal.

Results
Reliability and validity
Reliability of the constructs was assessed using Cronbach’s α scores. The reliability scores of all constructs are between 0.846 and 0.966 (higher than the recommended value of 0.7). The validity of the constructs was assessed using the confirmatory factor analysis. The composite reliability (CR) and average variance extracted (AVE) of each construct are given in Table II. The correlation between each construct is also given in Table II. Based on the values, it can be seen that: CR of all constructs are greater than 0.7, AVE of all constructs are greater than 0.5, and AVE of each construct is higher than squared correlation of that construct with all other constructs. The correlation coefficients between the various constructs are given in Table II. The results suggest that convergent and discriminant validities of all constructs are acceptable.

Descriptive statistics
Descriptive statistics of all constructs are given in Table III. Based on the mean values, it can be inferred that perceptions of levels of attributes of transformational leadership, and

<table>
<thead>
<tr>
<th>SNo.</th>
<th>Construct</th>
<th>CR</th>
<th>AVE</th>
<th>TL</th>
<th>INTER</th>
<th>DF</th>
<th>AC</th>
<th>SP</th>
<th>OUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TL</td>
<td>0.939</td>
<td>0.757</td>
<td>1.00</td>
<td>0.362*</td>
<td>0.297</td>
<td>0.295</td>
<td>0.228</td>
<td>0.325</td>
</tr>
<tr>
<td>2</td>
<td>INTER</td>
<td>0.846</td>
<td>0.605</td>
<td>0.602**</td>
<td>1.00</td>
<td>0.649</td>
<td>0.560</td>
<td>0.521</td>
<td>0.552</td>
</tr>
<tr>
<td>4</td>
<td>COMM-DF</td>
<td>0.962</td>
<td>0.836</td>
<td>0.545</td>
<td>0.806</td>
<td>1.00</td>
<td>0.629</td>
<td>0.545</td>
<td>0.659</td>
</tr>
<tr>
<td>5</td>
<td>COMM-AC</td>
<td>0.939</td>
<td>0.799</td>
<td>0.543</td>
<td>0.748</td>
<td>0.793</td>
<td>1.00</td>
<td>0.706</td>
<td>0.594</td>
</tr>
<tr>
<td>6</td>
<td>COMM-SP</td>
<td>0.966</td>
<td>0.877</td>
<td>0.478</td>
<td>0.722</td>
<td>0.738</td>
<td>0.840</td>
<td>1.00</td>
<td>0.572</td>
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<tr>
<td>7</td>
<td>OUTCOME</td>
<td>0.958</td>
<td>0.720</td>
<td>0.570</td>
<td>0.743</td>
<td>0.812</td>
<td>0.771</td>
<td>0.756</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Notes: CR, composite reliability; AVE, average variance extracted. *Values above the diagonal are squared correlations; **all correlations significant at 0.05 level of significance

Table II.
Reliability and validity of constructs
interdependence are “medium”; perceptions of levels of collaboration outcomes, community roles (demands and feedback, accountability and transparency, and support and participation) are high; skewness and kurtosis statistics of all constructs are between $-1$ and $+1$ indicating the normality of the constructs.

Testing of hypotheses

The structural model was run using structural equation modeling (SEM) software, Lisrel 9.2. SEM is a family of statistical models that seek to explain the relationships among multiple variables. In doing so, it examines the structure of interrelationships expressed in a series of equations, similar to a series of multiple regression equations (Hair et al., 2009). The fit statistics of the structural model are: $\chi^2/df = 1.125$ (acceptable value $< = 5$) ($p$-value = 0.325), root mean square error approximation $= 0.018$ (acceptable value $< = 0.08$), goodness of fit index $= 0.998$ (acceptable value of all fit indices $> = 0.9$), comparative fit index $= 0.998$, Incremental fit index $= 0.998$, root mean residual $= 0.005$ (acceptable value $< = 0.08$). Based on the fit indices, it can be seen that the model fit is good. The salient results are:

- The hypothesis that links transformational leadership and interdependence is supported ($\beta = 0.194$, $p$-value $= 0.000$).
- The relationship between transformational leadership and collaboration outcome is supported ($\beta = 0.134$, $p$-value $= 0.000$) verifying the claim of this study.
- The relationship between interdependence and collaboration outcome is not supported ($\beta = 0.074$, $p$-value $= 0.134$). This result is puzzling given the studies with significant relationships in private sector collaboration. A plausible reason for this result is explained in the Discussion section.
- The hypotheses that link community role (demands and feedback) with interdependence ($\beta = 0.477$, $p$-value $= 0.006$) and collaboration outcome ($\beta = 0.451$, $p$-value $= 0.000$) are supported. The hypotheses that link community role (accountability and transparency) with interdependence ($\beta = 0.107$, $p$-value $= 0.031$) and collaboration outcome ($\beta = 0.132$, $p$-value $= 0.018$) are supported. The hypotheses that link community role (support and participation) with interdependence ($\beta = 0.187$, $p$-value $= 0.006$) and collaboration outcome ($\beta = 0.248$, $p$-value $= 0.000$) are supported.
- We did not explicitly hypothesize the relationships between the community roles. While testing the structural model, we uncovered the impact of community role (demands and feedback) ($\beta = 0.194$, $p$-value $= 0.000$) and community role (accountability and transparency) ($\beta = 0.686$, $p$-value $= 0.000$) on community role (support and participation). This finding clearly shows that to win the community’s support and participation it is important for the collaboration partners to demonstrate transparency and accountability (Co and Barro, 2009) and meet the demands of the community by obtaining regular feedback (Co and Barro, 2009).

<table>
<thead>
<tr>
<th>S No.</th>
<th>Construct</th>
<th>Mean (5-scale)</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transformational leadership</td>
<td>3.479 (Medium)</td>
<td>0.488</td>
<td>0.388</td>
<td>−0.435</td>
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<td>2</td>
<td>Interdependence</td>
<td>3.532 (Medium)</td>
<td>0.565</td>
<td>−0.312</td>
<td>−0.084</td>
</tr>
<tr>
<td>3</td>
<td>Community (demands and feedback)</td>
<td>3.998 (High)</td>
<td>0.675</td>
<td>−0.347</td>
<td>−0.411</td>
</tr>
<tr>
<td>4</td>
<td>Community (accountability and transparency)</td>
<td>4.030 (High)</td>
<td>0.613</td>
<td>−0.369</td>
<td>−0.014</td>
</tr>
<tr>
<td>5</td>
<td>Community (support and participation)</td>
<td>4.043 (High)</td>
<td>0.629</td>
<td>−0.359</td>
<td>−0.431</td>
</tr>
<tr>
<td>6</td>
<td>Collaboration outcome</td>
<td>4.043 (High)</td>
<td>0.631</td>
<td>−0.182</td>
<td>−0.656</td>
</tr>
</tbody>
</table>

Table III. Descriptive statistics of constructs
Since the relationship between interdependence and collaboration outcome is not significant, the mediation relationship (transformational leadership-interdependence-collaboration outcome) is not supported. The framework with significant relationships is given in Figure 2.

Discussion
This research was undertaken to identify the critical success factors that lead to successful outcomes in public sector collaboration under mandated environment and the study was conducted in Malaysia. The success factors and the perceived outcomes were derived from the perspectives of public sector officers who were involved in the design, implementation, and governance of the collaboration process. The public sector in this research referred to government ministries and agencies. As highlighted, there is a dearth of empirical research on mandated public sector collaboration. The framework developed identified the factors that lead to perceived collaboration outcomes as transformational leadership, interdependence (task, goal, resource, reward, and accountability), and community (demands and feedback, accountability and transparency, and support and participation). It is important to note that the outcome captured in this research is the perceived outcome. An important contribution of the study is in explicating the roles of leadership and community (demands and feedback, accountability and transparency, support, and participation) in driving the interdependence between the collaborating ministries/agencies and collaboration outcomes. According to Rodriguez et al. (2007), mandated collaboration requires the mobilization of multiple governance mechanisms. In this research, we highlight the roles of transformational leadership, interdependence, and community as the mechanisms that lead to successful outcomes.

Based on the findings of our study, it is evident that leadership, in general and transformational leadership, in particular is perceived to be essential to build and establish interdependence between collaboration partners and drive the collaboration outcomes. The descriptive statistics indicate that the mean perception level of interdependence (mean = 3.53 on a five-scale) is “moderate.” The lead ministries in Malaysia that are responsible for the achievement of specific social goals must find ways to improve the interdependence. This can be accomplished by settling any outstanding issues between the
partners, clarifying the terms of reference, tasks to be accomplished, resources to be shared, and the social goal(s) to be achieved, and having frequent dialogues with the partners. To achieve these, role of leadership is crucial (Konorti, 2012; Mabey and Morrell, 2011). In Malaysia, for the achievement of each social goal, one key ministry is appointed as the lead ministry and this ministry assumes the leadership role. For example, Ministry of Home Affairs is the lead ministry collaborating with more than 20 other ministries and agencies to achieve targets of reducing crime in Malaysia. Any misunderstanding between the partners is dissolved by the leadership through regular communication with them and by aiding communication between them. The finding on the role of leadership in our study vindicates the stand of earlier researchers on the criticality of the leader’s role in achieving collaboration outcomes (Smith et al., 2011). We submit that in public sector collaboration, leadership is vital to solve complex social problems.

The intriguing result of this study is the “insignificant” relationship between interdependence and collaboration outcome which is contrary to the findings of the earlier studies (O’Leary and Vij, 2012). Further analyses between the dimensions of interdependence and collaboration outcome show some interesting results. Of the five dimensions of interdependence, only three dimensions have significant relationships with outcomes. Goal interdependence has a negative relationship ($\beta = -2.620$, $p$-value $= 0.000$) and reward ($\beta = 1.152$, $p$-value $= 0.000$) and accountability ($\beta = 0.581$, $p$-value $= 0.000$) interdependencies have positive relationships with outcome. The combination of positive and the negative relationships of dimensions may have contributed to an overall “insignificant” relationship of the construct. The positive relationship is not surprising since researchers have argued the positive impact of reward and accountability interdependencies on outcomes in Malaysia (Ali et al., 2014; Siddiquee, 2007). What is the reason for negative relationship between goal interdependence and outcome? In Malaysia, each ministry/agency is mandated to collaborate with different ministries/agencies to achieve common social goals. Besides, each ministry has its own goals to be achieved. If the individual and common goals are not “in sync,” it can lead to not achieving the desired social outcomes.

The roles of the community in this study are very encouraging. Based on the descriptive statistics, the perception of community roles can be deemed to be high in Malaysia. Three roles of community (demands and feedback, accountability and transparency, and support and participation) have been assessed and these roles are critical in Malaysia. Community role in the form of demands and feedback plays an important role in enhancing the interdependence between the collaborating ministries/agencies and collaboration outcome. The relationship of this community’s (demand and feedback) role with outcome is the strongest ($\beta = 0.451$, $p$-value $= 0.000$). The results suggest that lead ministries and collaboration partners must keep “their ears close to the ground” to understand the demands and feedback of the general public. This is in line with what Co and Barro (2009) have suggested about the importance of listening to the demands and feedback of the public to solve social problems.

The community expects accountability and transparency from the public agencies and encourages agencies to work interdependently (Co and Barro, 2009). In this research, community’s perception about transparency and accountability has a direct impact on interdependence between the partner ministries/agencies and the collaboration outcome. The community expects the agencies to be accountable and transparent about the financial expenditures and dealings and the outcomes. This requires the public agencies to work cohesively in keeping each other informed for public reporting on collaboration outcomes. According to Siddiquee (2007), the level of transparency and accountability in Malaysian public agencies is not high. Typically, when the perception is low, each partner may contribute very little in the form of sharing resources and information. This may have a serious impact on the interdependence between the partners.
The role of community in the form of support and participation has significant impacts on interdependence and collaboration outcome. According to Co and Barro (2009) and McNamara (2014), the involvement of community encourages the collaboration partners to be strongly interdependent. The community plays a crucial role in providing its support and active participation to ensure successful collaboration outcomes (Avina, 2011). The support and participation of the community encourages collaboration partners to acquire resources that contribute to achieving collaboration outcomes (Avina, 2011).

Conclusions and limitations of the study
The current study has identified the success factors that are critical in mandated public sector collaboration and has integrated them into a framework. The factors that contribute to the achievement of social goals are transformational leadership, interdependence, and the community (demands and feedback, accountability and transparency, and support and participation). The framework developed is a “sandwich framework” with interdependence and collaboration outcomes sandwiched between transformational leadership and community. Even though this study was conducted in Malaysia, we believe that the framework can be validated in any other country such as the UK, Norway, and Australia where mandated collaboration is practiced. The findings of this study can be extended to countries like Canada, where mandated collaboration is followed in certain contexts. For example, a study by Rodriguez et al. (2007) discusses the various challenges of mandated collaboration among public health organizations.

The current study is not without limitations. First, the ministries/agencies that participated in this study were at the federal level. The state-level agencies and local government bodies were not included in this research. This is because only national-level social goals were considered in this research. Future studies can study these agencies and bodies explicitly. Second, the sample size in this research was limited to 392 respondents in spite of one of the authors being employed in one of the central agencies. Third, this study was cross-sectional. A longitudinal study might be conducted to establish the cause-effect relationships empirically. Fourth, each questionnaire was filled by an officer. Even though we tested for the effect of common variance bias and showed minimum impact, the effect could not be eliminated.

References


Further reading


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