

# Physical Community Cohesion Model: In Transition to Virtual Community Cohesion Measurement

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**Abstract:** *Community cohesion is a very broad concept which means either the process or the state in which a better relationship is established or encouraged between people of different backgrounds, not only in the physical community, but also in the virtual community. The dramatic increase in the number of social media users, especially Facebook, provides some indication that in the lives of many people, virtual community is very vital. If it can be used as a platform for nurturing or inculcating community cohesion, the benefits of virtual community can be further exploited. Somehow a model to measure community cohesion is yet to be devised. Hence, this paper aims to present the transition of the physical to virtual community cohesion model. This process began with the development of the cohesion model of the physical community. Next, the model was reviewed against the virtual community characteristics to determine its relevance for measuring virtual community cohesion. The findings suggest that of the nine physical community cohesion constructs found for the model, only eight are pertinent to virtual community.*

**Keywords:** *cohesion measurement, cohesion model, community cohesion, virtual community*

## I. INTRODUCTION

Social cohesion is vital to the development and security of a country, and the issue of cohesion has been a constant challenge. Obviously, by promoting unity, Malaysia supports this. Building community cohesion (or being used interchangeably with social cohesion) is about building better relationships among people from different backgrounds, including those from new and settled communities. This applies to both the physical community and the virtual community. National unity is very much related and contributed to social cohesion. Social cohesion can simply be described as a concept of how well people and communities work together for the benefit of everyone [1]. It is a popular concept used to describe a more differentiated society's strength of human relationships and stability. Sometimes social cohesion is used casually as a label for social success or stable relationships of race.

Several studies have found that social cohesion is important to society's well-being and prosperity [2, 3, 4, 5, 6].

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Moreover, [7] stated that "the social cohesion of a country is essential in order to generate trust and patience," which is crucial in order to gain citizens' trust in government, especially when reforms are implemented.

The advancement of Internet technology makes it possible to create a new communication medium resulting in the emergence of virtual communities.

Sometimes interchangeably are used the terms "virtual community" and "online community." Virtual community is "a group of people who share characteristics and only interact in essence or effect"[8]. Through interaction and participation, the users of such community platform will establish either a formal relationship (such as civic and political) or informal relationships. This could be possible by connecting with family members, close friends and colleagues. However, such participation can go beyond those of the known circles, not only to include indicated circles of known others. This is particularly evident in the virtual or online community where it is easy to extend the "friendships" to include friends of friends.

The rise of new social media has also affected the political landscape of Malaysia. This is evidenced when it serves as a venue where fundamental political conflicts are being waged [9] as new political tactics have been introduced and new coalitions formed. As a result of being technologically empowered through the new social media, the relationship between the political figures of the country and its citizens has been redefined, leading to an increase in the participation of citizens during the 13th General Election in Malaysia [10]. In fact, Malaysia had its first "social media election"[12] before the general election, due to the exponential growth of social media users – more than 13.2 million Facebook users and 2 million Twitter users [11]. In the general election (GE) campaign, the new media was used as a tool to mobilize support from both online and offline users [13, 14] and to connect with citizens for their political views [15].

The impacts of social media online are similar to the effects of telephone, radio, and television once in ubiquity. Similarly, if it can be used as a platform to nurture or inculcate community cohesion, the benefits of virtual community can be further exploited. This is supported by [16] who suggest that one of the key issues in virtual community research is the virtual community's role in increasing community cohesiveness. This will contribute to the work investigating the relationship between virtual community and other disciplines of information [17].



Furthermore, as a mechanism to establish relationships among members, virtual community can be regarded as a system that can assist in transforming the community. In particular, the outcome of this study can provide some input on what are pertinent to virtual community cohesion.

## II. COMMUNITY COHESION

Most According to [18], there are four main components of cohesion: social relationships, task relationships, perceived unity, and emotions. Cohesion is defined by the Collins dictionary as "tendency to unite." Simply, the cohesiveness of group or community can be seen as a tendency for the group or community to have a sense of unity, interacting in a harmonious and agreeable way. Building community cohesion involves building better relationships among people from different backgrounds, including those from new settled communities, in order to achieve community unity. This is in line with [19] findings, which state that relationships are key to the unity and connectivity of Malay-sian virtual community.

Their findings indicate that all involved parties are required to I work together in a positive, cooperative and respectful manner to achieve desirable outcomes; and (ii) avoid confrontation by dealing directly with differences for a harmonious virtual community. It is important to note that these findings are seen as one of the social capital theory dimensions.

A more comprehensive framework for social cohesion has been proposed [20], which defines social cohesion as "a state of affairs concerning both vertical and horizontal interactions between members of society, characterized by a set of attitudes and norms that include trust, a sense of belonging, a willingness to participate and assist, and their behavioral manifestations." Due to its comprehensiveness, this framework is adopted for this study.

The new media can be a tool for social cohesion, but it can also be a weapon for social destruction and disunity. In a weak social relationships and ties, lack of cohesion can be reflected. Such a community is susceptible to tension and conflict, and members can be kept separate by fear, resentment, scarce resources competition, or privilege protection [1]. A group suffering from lack of cohesion also has difficulty in developing sense of belonging and ownership of the group, and this can have a serious impact on both group performance and individual satisfaction [21]. In addition, [22] the study showed that residential and institutional segregation had contributed to tensions between local communities without social cohesion. While there is evidence that social cohesion is vital to the development and security of a country [1, 7, 22, 23], the issue of cohesion has been a constant challenge.

Literature on community cohesion focuses primarily on unity, trust, sense of belonging, etc., but to the researcher's knowledge, none has yet developed a comprehensive model of what physical community cohesion within Malaysia should consist of. Malaysia is a unique country with a variety of cultures and languages due to its multi-racial and multi-ethnic composition. Such diversity could lead to Malaysia becoming a nation prone to disharmony, conflict,

tension, fear and resentment, all of which are active ingredients of disunity.

Community cohesion is generally perceived as a positive term, community membership, life opportunities [24, 25, 26], or common cause for action [1, 24]. It can simply be understood that social cohesion consists of a number of key elements – positive relationships, similar life opportunities, civic engagement and participation, and common vision and values [24, 26]. However, cohesion issues do not just revolve around those facets. With regards to the physical community, the issue of race, faith and poverty are also important in determining the cohesiveness of a society [22]. These provide indications that the definition of social cohesion is contextualized. Using the definition by [20] as indicated earlier, a model for measuring community cohesion can be materialized.

## III. Research method

In order to address the issues specified in preceding sections, the strategy that was employed is depicted in Fig. 1. The strategy was meant to identify the items pertinent to physical community cohesion constructs and items. These were done by means of literature and expert reviews. The framework of the physical community cohesion for the Malaysian context was established based on [20] as shown in Table 1. The framework can be visualized in the form of a two-dimensional matrix related to the sets of attitudes (representing the subjective component) and norms (representing the objective component).

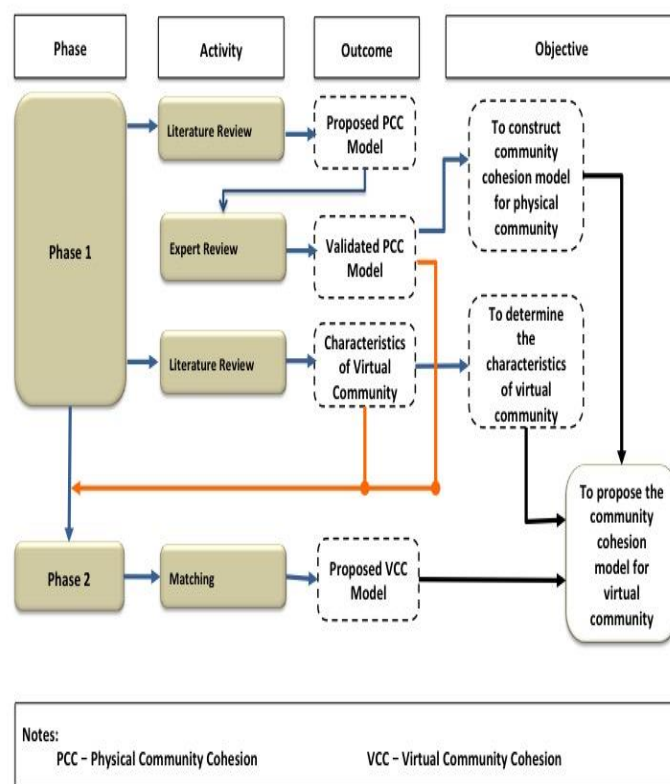


Fig 1. Research design



**Table. 1 Social cohesion measurement framework [20]**

	<b>Subjective component (attitude)</b>	<b>Objective component (norms)</b>
<b>Horizontal interaction (cohesion within civil society)</b>	General trust with fellow citizens	Social participation and vibrancy of civil society
	Willingness to co-operate and help fellow citizen	Voluntarism and donations
	Sense of belonging	Presence or absence of major inter-group alliances
<b>Vertical interaction (government – society relationship)</b>	Trust in public figures	Political participation
	Confidence in political and other major social institutions	

Horizontal dimension refers to the relationship within society between different individuals and groups. Their attitudes and norms (subjective component) and their actual behavior (objective component) reflect this. For each dimension, the framework suggests the following constructs:

- Subjective component
  - o General trust with fellow citizens
  - o Willingness to co-operate and help fellow citizen
  - o Sense of belonging
- Objective component
  - o Social participation and vibrancy of civil society
  - o Voluntarism and donations
  - o Presence or absence of major inter-group alliances

The vertical dimension, on the other hand, examines the relationship between the state and its citizens (or civil society) and how they (the citizen) manifest such relationship in the real situation. The framework suggests the following construct, similar to the horizontal dimension:

- Subjective component

**Table. 2 Proposed items for physical community cohesion constructs**

	<b>Subjective component (people’s state of mind/ attitudes, opinions)</b>	<b>Objective component (behavior that reflects the corresponding subjective feelings)</b>
<b>Horizontal dimension (cohesion within civil society/interaction within society)</b>	<p><b>General trust with fellow citizens - measure mutual trust among citizens)</b></p> <ul style="list-style-type: none"> <li>• Recognition – tolerance of plurality [27], appreciate and value positively community diversity [29], strong and positive relationship of people from different background [29]</li> <li>• Sense of trust [20, 28]</li> <li>• Acceptance – including mutual respect [39]</li> </ul>	<p><b>Social participation and vibrancy of civil society</b></p> <ul style="list-style-type: none"> <li>• Participation (social – social contacts, civic – in organizations, political) [20, 31]</li> <li>• Community participation [20, 31]</li> <li>• Interpersonal interaction – attraction, behavior, duration [32], stay in community (loyalty), attraction to members [37]</li> <li>• Piety [39]</li> <li>• Moderation in conduct and speech [39]</li> <li>• Prudence in decisions and actions [39]</li> </ul>

- o Trust in public figures
- o Confidence in political and other major social institutions
- Objective component
  - o Political participation

Based on the original framework of [20], an initial physical community cohesion model was developed using the strategy as depicted in Fig. 1. Prior to the expert reviews, related literature on community cohesion were sought to get an initial understanding on community needs for unity and other attributes pertinent to community cohesion, and thus proposed the initial model for physical community cohesion that offers more detail information for each construct as compared to the original construct. Upon obtaining the initial model, expert reviews were conducted to validate the model and then the finalized model for physical community cohesion was constructed. The work proceeds with review of literature to determine the characteristics of a virtual community. Having completed the review, the physical community cohesion model was mapped against virtual community characteristics to match the two so as to propose the virtual community cohesion measurement model.

#### IV. RESULTS AND DISCUSSIONS

In this section, the results obtained from each phase described in Section 3 will be presented and discussed.

##### Identification of the physical community cohesion items

The original framework as described in the previous section offers less detail breakdown of its constructs and this study took it further by identifying items for each construct based on samples given by [20] and reviews of related literature as presented in Table 2 [1, 7, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36]. Each item was classified based on its formal definition and the perceived context of its usage in the literature that it was retrieved from. The constructs and proposed items were then be reviewed by experts to confirm their relevance within the Malaysia context.



	<p><b>Willingness to cooperate and help</b> fellow citizens, including those from “other” social groups</p> <ul style="list-style-type: none"> <li>• positive interactions (or active social relationships) [1] – manifested by the existence of mutual support information, trust (law) trust and credit of various kinds.</li> <li>• Recognition – tolerance of plurality [27]</li> <li>• Social order - safety and freedom from fear and conflict, or passive social relationships. Tolerance and respect for other people, along with peace and security, are hallmarks of a stable and harmonious urban society. [1]</li> <li>• Active participation either informal or formal social networks [28]</li> <li>• Connection and relations between individuals, groups, and territorial units [20, 30]</li> <li>• Acceptance [39]</li> </ul>	<p><b>Voluntarism and donations</b></p> <ul style="list-style-type: none"> <li>• Engagement in voluntary partnerships [20, 28]</li> <li>• Donations [20]</li> <li>• Philanthropy</li> <li>• Donation</li> <li>• Endowment</li> </ul>
	<p><b>Sense of belonging or identity</b></p> <ul style="list-style-type: none"> <li>• Social inclusion or integration – strength of shared experiences, identities &amp; values between those of different background [1, 27] shared values, shares challenges [28, 33], acceptance mechanism [33]</li> <li>• Sense of belonging, feeling and morale [20, 29, 34]</li> <li>• Common vision/shared values [29, 35]</li> <li>• Acceptance [39]</li> <li>• Multi-cultural [39]</li> </ul>	<p><b>Presence or absence of major inter-group alliances or cleavages</b></p> <ul style="list-style-type: none"> <li>• Strength of social fabrics [1]; others’ willingness to cooperate and collaborate [20]</li> <li>• Integration [31]</li> <li>• Social equality (disparity/fairness in access to opportunities &amp; etc.) [1, 27, 28, 29]</li> <li>• Fulfillment of basic needs (demographic variables – income, ethnicity, political party, etc.) [7, 36] public facilities, household income, education, exposure to mass-media [36]</li> <li>• Mutual respect [39]</li> <li>• Piety [39]</li> </ul>
<b>Vertical dimension (government-society relationship/state-citizen cohesion)</b>	<p><b>Trust in public figures</b></p> <ul style="list-style-type: none"> <li>• Trust (social – in others, institutional, political) [20, 28, 31]</li> </ul>	<p><b>Political participation</b> (e.g. voting, political parties etc.)</p> <ul style="list-style-type: none"> <li>• Participation – involvement / relationship of individuals with central and local government. [20, 28]</li> </ul>
	<p><b>Confidence in political and other major social institutions</b></p> <ul style="list-style-type: none"> <li>• Legitimacy – mediation between public and private institutions/ among individuals of different interests [20, 27]</li> <li>• National ideology</li> <li>• Social Capital (faith in state institutions and political parties)</li> </ul>	

**Validation of the physical community cohesion items**

This proposed constructs of physical community cohesion and items obtained from the previous phase were then reviewed in order to verify the validity of the model by two experts in the areas of social development and ethnic relations. The first expert is Universiti Utara Malaysia Professor of Sociology Development who has 27 years of sociology experience. The second expert is an ethnic relations and development studies professor in sociology from Universiti Kebangsaan Malaysia. The experts were asked to comment on the suitability and suitability of each building item. Following the snowball approach, the first expert recommended the second. The first expert was presented with the list of items of each construct for the proposed physical community cohesion model. The expert was asked to comment on the suitability and suitability of each item on the construction and to suggest any changes. Upon completion, the model

was updated by incorporating the changes and recommendations by the first expert.

The improved model version was subsequently presented for similar process to the second expert. The process ended when there was no more extrapolated feedback and the model of community cohesion is considered valid. The end result is a physical community cohesion model along with the relevant items as illustrated in Table 3. As shown in Table 3, the rigor of the expert review process has led to a more refined and objective item being achieved for each construct.





However, further refinements need to be made if an instrument for measuring physical community cohesion is to be designed. Somehow, it provides strong basis for the sub-

sequent work towards formulating the virtual community cohesion measurement instrument.

**Table. 3 Items for physical community cohesion model**

	<b>Subjective component (attitude)</b>	<b>Objective component (norms)</b>
<b>Horizontal interaction (cohesion within civil society)</b>	<b>General trust with fellow citizens</b> <ul style="list-style-type: none"> <li>• Recognition by the members of the community on the existence of ethnic diversity.</li> <li>• Appreciate ethnic diversity.</li> <li>• Value ethnic diversity.</li> <li>• Acceptance of multi-ethnic.</li> <li>• Acceptance of uniqueness of ethnic communities.</li> <li>• Mutual respect in multi-ethnic communities.</li> </ul>	<b>Community participation and vibrancy of civil society</b> <ul style="list-style-type: none"> <li>• Involve in needs assessment. (need assessment)</li> <li>• Represent community. (leaders)</li> <li>• Community member involvement in decision-making. (management)</li> <li>• Responsibility in decision-making. (management)</li> <li>• Accountability in decision-making. (management)</li> <li>• Community contribution in supporting programs for community. (Resource mobilization)</li> <li>• External supports in programs for community. (Resource mobilization)</li> <li>• Integration of community programs in existing structures. (Organization)</li> <li>• Attraction to the community.</li> <li>• Attractive to members.</li> <li>• Loyalty to the community.</li> <li>• Behavior/conduct to the community.</li> <li>• Function of community</li> <li>• Commitment of members.</li> </ul>
	<b>Willingness to co-operate and help fellow citizen</b> <ul style="list-style-type: none"> <li>• Positive interactions among members of community</li> <li>• Active social relationships among members of community</li> <li>• Active participation in formal social networks.</li> <li>• Active participation in informal social networks.</li> <li>• Relations among community members.</li> </ul>	<b>Voluntarism and donations</b> <ul style="list-style-type: none"> <li>• Engagement in voluntary partnerships.</li> <li>• Engagement in NGOs.</li> <li>• Engagement in philanthropic activities.</li> <li>• Administration of charities (Donation – Efficiency/Inefficiency of Charitable Giving)</li> <li>• Contribute to charity. (Donation - Altruistic giving/Cynical giving)</li> <li>• Purpose of charity. (Donation - Purpose of charity)</li> <li>• Cooperative in maximizing joint outcomes.</li> <li>• Individualistic in maximizing own welfare with no concern of that of the others.</li> <li>• Competitive in maximizing own welfare relative to that of the others.</li> <li>• Aggressive in minimizing the welfare of others.</li> <li>• Undertake a task to protect oneself. (Volunteer - Protective motives)</li> <li>• Undertake a task to please oneself. (Volunteer – Values)</li> <li>• Undertake a task as a career/responsibility. (Volunteer – Career)</li> <li>• Undertake a task for the benefit of a community. (Volunteer – social)</li> <li>• Undertake a task to understand oneself. (Volunteer – Understanding)</li> <li>• Undertake a task to enhance oneself. (Volunteer – enhancement)</li> </ul>
	<b>Sense of belonging</b> <ul style="list-style-type: none"> <li>• Strength of shared experiences in terms of language/childhood experience/ education/ culture/ food.</li> <li>• Identities between those of different background experiences in terms of language/childhood experience/ education/ culture/ food.</li> <li>• Common vision in terms of language/childhood experience/ education/ culture/ food.</li> <li>• Shared challenges in terms of language/childhood experience/ education/ culture/ food.</li> <li>• Shared values in terms of language/childhood experience/ education/ culture/ food.</li> </ul>	<b>Presence or absence of major inter-group alliances</b> <ul style="list-style-type: none"> <li>• Regular cooperation among political parties/NGOs/Associations (including religious association)</li> <li>• Voluntary collaboration among political parties/NGOs/Associations (including religious association)</li> <li>• Equality in access to opportunities.</li> <li>• Existence of alliance/cleavage due to religious conduct. (Piety)</li> </ul>



<b>Vertical interaction (government-society relationship)</b>	<b>Trust in public figures</b> <ul style="list-style-type: none"> <li>• Trust in political leadership.</li> <li>• Trust in public services.</li> <li>• Trust in law enforcement.</li> <li>• Trust in judiciary.</li> <li>• Trust in sovereignty of the ruler.</li> <li>• Trust in federal-state government relationship.</li> </ul>	<b>Political participation</b> <ul style="list-style-type: none"> <li>• Involvement of individuals with central government.</li> <li>• Involvement of individuals with local government.</li> <li>• Relationship of individuals with central government.</li> <li>• Relationship of individuals with local government.</li> <li>• Expressing political opinions/views through mass media.</li> <li>• Expressing political opinions/views through open public rally.</li> <li>• Active involvement in political activities.</li> </ul>
	<b>Confidence in political and other major social institutions</b> <ul style="list-style-type: none"> <li>• Legitimacy – mediation between public and private institutions/among individuals of different interests</li> <li>• Upholding to the principles of nationhood Justice to all irrespective of ethnic.</li> <li>• Justice to all irrespective of religion</li> <li>• Faith in national government.</li> <li>• Faith in local council.</li> <li>• Faith in courts.</li> <li>• Faith in the police.</li> <li>• Faith in political parties</li> <li>• Faith in Parliament</li> </ul>	

**Identification of the virtual community characteristics**

The virtual community's characteristics were determined on the basis of extensive review of relevant literature and the ICT knowledge of the researchers themselves. It can be concluded that there are five attributes central to the notion of virtual community namely (i) existence in cyberspace, (ii) Internet as the mechanism for interactions or communication, (iii) Relationship is based on common interests or goals, (iv) Active member's participation, and (v) Reasonable duration of participation. These characteristics are described next.

**(i) Existence in cyberspace**

People's existence in the cyberspace can be traced in different situations. One platform where people communicate in cyberspace is through social media, which nowadays appears in different names including Facebook, WhatsApp, Instagram, Twitter, Blog, and many others. This study shows there are trends of public's preferences and experiences in using social media, where Facebook is found to be the most frequently used social media. The respondents are experienced users with at least four years experiences. The category of virtual community participation ranges from Social, Education, Hobby, Religion, Games, Business, and Politics.

**(ii) Internet as the mechanism for interactions or communication**

The Internet has been long used as a mechanism for people to get connected to each other. This study shows that social media such as Facebook, WhatsApp and Instagram act as a means of providing people through the Internet with closer and faster interaction and communication around the world.

**(iii) Relationship is based on common interests or goals**

It is known that in the literatures, the participation in the virtual community is based on special interest. Interesting enough that our respondents can verify these characteristics by being able to identify the purpose of each virtual community they joined. From this point of view, the respondents are willing to establish relationship by participating in the virtual community based on their common interests. This

study found that users used social media predominantly for socializing, followed by education and hobby. This shows that the respondents have created relationships based on their needs and interests.

**(iv) Active member's participation**

Willingness to cooperate defines the importance of interaction and communication in a virtual community. This study found that there was active participation among the users of virtual community. This includes positive interactions among members, active social relationships in the participated virtual community, active participation in formal as well as in informal social virtual networks.

**(v) Reasonable duration of participation**

Duration of participation refers to the experience in using social media. This indicates that the longer the duration of participation the more committed they are to the VC. This study shows that most respondents are experienced social media users.

These features were obtained on the basis of a number of virtual community operational definitions including works by [8, 17, 38, 40, 41, 42, 43, 44] and many others. These characteristics will then be used as the basis in determining the relevance of the physical community cohesion items for application in the virtual community environment.

**Identification of the virtual community cohesion items**

In constructing the virtual community cohesion model, the items proposed for the physical community cohesion constructs (Table 3) are reviewed against the virtual community characteristics as described in the preceding section. During the review process, each physical community cohesion item was checked for its relevance for application in the context of virtual community. The process repeats until all items have been checked. The items that are relevant were retained for inclusion in the virtual community cohesion model. The results of this process are shown in Table 4.



**Table. 4 Proposed items for virtual community cohesion model**

Constructs	No. of Items	Items
General Trust	6	Recognition, Appreciation, Ethnic Diversity, Multi-Ethnicity Community Membership, Single Ethnicity Community Membership, Mutual Respect.
Willingness to Cooperate	5	Positive Interaction, Active Social Relationships, Active Formal Participation, Active Informal Participation, Relations among Community Members.
Sense of Belonging	5	Shared Experiences, Identities, Common Vision, Shared Challenges, Shared Values.
Community Participation	11	Involvement in Needs Assessment, Community Leader, Community Member Involvement in Decision-making, Responsibility in Decision-making, Accountability in Decision-making, Community Contribution, External Support, Commitment, Participation of people to the VC, Members' participation in the VC, Members' involvement in VC activities.
Voluntarism and Donations	15	Voluntary Engagement, NGOs, Philanthropy, Charity, Purpose, Cooperative, Individualistic, Competitiveness, Aggressiveness, Own Protection, Please Oneself, Career Responsibility, Benefit to Community, Understand Oneself, Enhance Oneself
Inter-Group Alliances	4	Establish Cooperation, Voluntary Collaboration, Equality, Alliances
Trust in Administrator	6	Trust in Political Leadership, Trust in Services Provided, Trust in Enforcement of Rules/Procedures, Trust in Fair Play System, Involvement in Decision-Making, Accountability
Political Participation	1	Active Involvement

As shown in Table 4, of the original nine constructs, only eight are pertinent to virtual community. The one that was completely excluded, along with its nine items, is the “*Confidence in political and other major social institutions*”, that is a construct of subjective component in the vertical interaction dimension. It is perceived that, in a virtual community “structure”, there is no established political or social institution. If it were to exist, it is hardly recognized by any real and formal organization or establishment as an institution. Currently, what is existed is a virtual community that is used as a medium or platform to facilitate the interactions by any formal structure with its target audience. As such, there is no governance structure that could be associated with virtual community. For these reasons, all the items for the construct were excluded.

Another construct that was also affected is the “*Trust in Public Figure*”. In virtual community, there is no individual that is perceived to play the role that was meant in the context of the physical community. The closes resemblance of

such figure is the administrator of a specific virtual community group. For such reason, the construct was replaced with “*Trust in Administrator*”. As such, some of the original items were replaced with the ones that are appropriate for the corresponding items. In fact, similar exercise was performed on to the other items of other constructs. This is to ensure they really reflect what they are supposed to reflect.

#### IV. CONCLUSION AND FUTURE WORKS

The matching exercises that have performed as presented earlier has resulted in the significant reduction in the total number of items in the proposed virtual community cohesion model with 53 items as compared to 62 of the proposed physical community cohesion model with the similar constructs, and 71 items with all constructs.



These numbers show that there are noteworthy differences in both models, which means that the physical community cohesion model needs to be transformed if were to be used as a mean to assess cohesion of a virtual community.

From the processes that have been outlined in the research strategy, three main outputs were produced namely the initial physical community cohesion model, proposed physical community cohesion model, and the proposed virtual community cohesion model. The initial physical community cohesion model extends the work of [20] by including more items pertinent to physical community cohesion. This model is an attempt to cater the cohesion issue pertinent communities that are diversified in nature as existed in Malaysia. The proposed physical community cohesion model provides a set of validated items that could be the basis for designing an instrument for measuring the state of physical community cohesion. Upon validation, the instrument could be used not only in nation similar to Malaysia, but also in any country. Similarly, the proposed virtual community cohesion model can be employed as a basis for designing an instrument for measuring the state of cohesion of any virtual community. To some extent the models have included most of the aspects that characterized a cohesive community. The developed models and the instruments that are yet to be designed can also be used as a tool to deliberate proper actions to enable virtual community to become one of the settings for nurturing cohesion.

## V. ACKNOWLEDGMENT

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