

The Creation of the Emotional and Social Competency Inventory (ESCI)

Findings from a pilot study to achieve a higher psychometric standard with the ECI



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Summary

The challenge

The Emotional Competence Inventory (ECI-2) and the ECI-U (University Version) show acceptable validity and reliability in a variety of studies; in fact, levels that are relatively rare for tests available to most practitioners and consultants. However, there is some criticism of our approach to conceptualizing and measuring EI in the professional research community. In some studies the competency scales do not appear valid as separate scales and the clusters do not differentiate themselves from each other. While this is of less concern to accredited users of the ECI, we decided to seek out a higher psychometric standard.

Our response

We started by re-conceptualizing the tests, both the ECI-2 and the ECI-U, as measures of 'social' and 'emotional' intelligence competencies. We then reviewed every item (360° survey question) and competency scale, applying factor analyses and revising them as necessary to ensure that they identified specific behaviors and were understandable and concise. This resulted in fewer competencies (12 instead of 18) and replaced the ECI-2 algorithm based on developmental levels with a measure based on consistency of behavior. The new instrument resulting from this work, the Emotional and Social Competency Inventory (ESCI), was piloted with a total of 116 participants and 1022 raters in the US and the UK.

The findings

The pilot study affirmed that the ESCI measures the behaviors that matter: those that contribute to effective performance. The psychometric standards achieved in the statistical analyses provided reassurance that the ESCI focuses on behaviors – and the relationships between them – that are observable, recognizable and distinct. The removal of developmental levels delivers a behavioral model which can be applied more satisfactorily to a wide range of work contexts, job roles and levels. The feedback package behind the ESCI will show participants how others experience their behavior in terms of the consistency with which they demonstrate emotional and social intelligence competencies. It will help participants to appreciate their strengths, to recognize how consistently they do certain things, and to identify what they can do more of to be even more effective.

The implications

The outcome of this work for the coaches and practitioners who are accredited to use the ECI is that there is now a choice of instruments. While we are more than pleased with the psychometric goal that the ESCI has attained, and satisfied that the revisions to the items and feedback package ensure even wider applicability, we realize that there are many reasons why practitioners may want to continue to use the ECI-2, or to use both in different circumstances.

What challenge were we facing?

Since 1970, when the first 'competency study' was conducted, we have established that competencies predict effectiveness in all sorts of management, leadership, and professional roles. This has been shown in a thousand or more empirical studies, which have taken place in many countries. And yet the quest for academic legitimacy and recognition continues.

The ECI-2 and ECI-U show acceptable validity and reliability in a variety of studies. It measures what it's supposed to measure, and it measures it consistently. People doing research with it feel it complements the existing tests of emotional intelligence. As a 360° test of competencies it is one of a number in the market, but the only one with some momentum to date.

Coaches using the ECI-2 and ECI-U feel they significantly help their clients and students to examine their emotional, social, and cognitive competencies and to develop them. They offer a number of distinctive features that coaches appreciate and value, like the developmental levels and feedback format. Through the efforts of colleagues at the Hay Group we have run many research projects using the ECI and ECI-U worldwide, and have built an increasing worldwide network of accredited ECI users. This has been good for the field, and has helped many people to appreciate and develop their strengths and talents.

Why does the ECI pose this challenge?

Part of this stems from a conceptual problem that we imposed on the 360° instrument. When we use behavioral sources, like comprehensive Behavioral Event Interviews (BEIs) or videotaped simulations, we derive alternate manifestations of the underlying competency. But when we move to a 360° test, we are asking untrained informants – not trained coders – to assess an individual and his or her behavior. And when informants are responding they need more guidance. We realized we could offer this guidance by integrating the intent behind a behavior into the wording of each item in the ESCI and ESCI-U.

How big is the challenge?

It is worth noting that the sound levels of validity (i.e. the instrument measures what it is designed to measure) that we have achieved with the ECI-2 and ECI-U are relatively rare for tests available to most practitioners and consultants. Most of the tests currently sold do not have this type of analytic back up. Of course, the tests used primarily in research are a different story. In the EI arena, the MSCEIT shows all of these characteristics, but less predictive validity against performance measures. The EQ-i (Reuven Bar-On's measure which is now a 360° as well as self-assessment) shows most of the same dilemmas as the ECI-2 and ECI-U. The Dulewich measure suffers from similar challenges – I don't know about the Fong measure – but less has been published on them. In the competency assessment arena, no tests or measures have successfully overcome all of these challenges, despite hundreds of published studies. So we chose to chase an important standard and goal that most have ducked in the field of practice, and some even in the research.

What did we do to address it?

A re-conceptualization...

We re-conceptualized the tests, both the ECI-2 and the ECI-U, as measures of 'social' and 'emotional' intelligence competencies¹. We realized the need to differentiate the Self-Awareness, Self-Management and Social

¹ Actually, the WSOM and ESADE versions of the ECI-U also include the two major 'cognitive intelligence competencies', namely Systems Thinking and Pattern Recognition

Awareness competency clusters from the Relationship Management cluster (previously known as Social Skills). In particular, we wanted to differentiate those competencies that focus on the use of one's ability to understand and use emotions about oneself from the ability to understand and apply emotional understanding when dealing with others. The division between Emotional and Social Intelligence seemed to be the best way to address this. **So the new tests are now called: The Emotional and Social Competency Inventory (ESCI) and The Emotional and Social Competency Inventory – University Version (ESCI-U).**

However, there is some criticism of our approach to conceptualizing and measuring EI in the professional research community, and this has started to affect practitioners. While the detailed research programs and analyses using the ECI-2 and/or ECI-U continue to show reliability and validity, they also indicate instability: that is, the competency scales do not often appear valid as separate scales. In some of these studies the clusters do not differentiate themselves from each other. The major cause is that the scales and clusters are intercorrelated at a high level. This has not been an issue for coaches and practical users of the test, but it does raise questions in the academic community.

...and a re-examination

In addition, we've examined every item (question) and competency scale against three criteria:

- Does it really differentiate from any of the other scales?
- Is it close to the related behavior that we observe in BEIs, videotapes and simulations?
- Can we drop this scale or item in order to achieve greater conciseness?

Some of the existing items and scales were good and some were less so (like many items in Initiative and Conflict Management). Some automatically collapsed into one larger scale in every data set with correlations of .85 to .95 (like Emotional Self-Awareness and Accurate Self-Assessment). So we decided which items to change and sought guidance in changing them by:

- going back to an assortment of actual BEIs, videotapes and simulations to reacquaint ourselves with the actual behavior that we, and others, saw.
- increasing the number of items per scale to 6 for the ESCI (5 plus 1 reverse-scored item in most scales) and 5 for the ESCI-U (because the ESCI-U is hand-scored, reverse-scored items will not be included in the ESCI-U, the same as in the present ECI-U). We do not expand the length of the test, which is at a burdensome maximum already, because the total number of competency scales is reduced.
- revisiting the wording of the items for each scale to ensure considerable overlap in language and concepts.
- using statistical results from many analyses of doctoral students in their dissertations, as well as detailed exploratory and confirmatory factor analyses.

A statistical review of scale structure, reliability and validity...

To increase the reliability² in terms of Exploratory and Confirmatory Factor Analysis and Item Response Theory, and in the hope of establishing better divergent validity³ of the scales and clusters, we needed to include more items per scale.

Three data analyses were used in our work on scale redesign:

² The extent to which the instrument yields consistent results with repeated use.

³ The extent to which the instrument yields results that indicate different, distinguishable competencies and clusters of competencies.

- 1 The correlation matrix of the scales by Steve Wolff in the November, 2005 Technical Manual (n = 21,256);
- 2 The Exploratory Factor Analysis by Boyatzis and Sala, 2004 (n ~ 6,500);
- 3 The correlation matrix generated from the factor scores of the Confirmatory Factor Analysis scale correlations by Joan Manuel Battista, 2005 (n ~ 6,500).

In addition, reliability calculated with Cronbach's alpha was used.

...and revisions to the competency scales

To take into account the high intercorrelation among certain scales, and to help create more divergent validity among the scales and clusters (but keep the time burden of test completion the same as it is now) we reduced the number of competencies to 12. The ESCI competencies are now:

- Emotional Self-Awareness: Recognizing one's emotions and their effects
- Emotional Self-Control: Keeping disruptive emotions and impulses in check
- Adaptability: Flexibility in handling change
- Achievement Orientation: Striving to improve or meeting a standard of excellence
- Positive Outlook: Persistence in pursuing goals despite obstacles and setbacks
- Empathy: Sensing others' feelings and perspectives, and taking an active interest in their concerns
- Organizational Awareness: Reading a group's emotional currents and power relationships
- Coach and Mentor: Sensing others' development needs and bolstering their abilities
- Inspirational Leadership: Inspiring and guiding individuals and groups
- Influence: Wielding effective tactics for persuasion
- Conflict Management: Negotiating and resolving disagreements
- Teamwork: Working with others toward shared goals. Creating group synergy in pursuing collective goals.

See Appendix 1 for an outline of the thinking behind the removal, merging or change of some of the ECI-2 competencies, and Appendix 2 for the revisions made to the ECI-U competencies.

Removal of developmental levels...

We dropped the competency developmental levels. This was a direct result of revising the wording of items for each scale to ensure overlap in language and concepts, and the consequence has been the ESCI's improved psychometric rigor.

This does not affect the ESCI-U because the ECI-U doesn't use developmental levels.

Competency levels can be helpful in capturing desired behaviors in a tailored competency model for a specific client. But when moving to generic models that should be valid across different roles and contexts, it becomes harder to apply them meaningfully for participants. Many accredited coaches also reported that their clients'

attempts to transform scores from the item responses to the levels often distracted from the true purpose of the coaching process.

Why does the ECI pose this challenge?

Those who find the developmental levels critical can continue to use the ECI-2.

...and removal of target levels

The removal of developmental levels results in the removal of the algorithm that lies behind the ECI-2 and therefore the removal of a target level for each competency. Instead, competency scores are presented in terms of consistency of demonstration (from 'Never' to 'Consistently') and summarized as an average score. In the future we are considering re-introducing tipping points (points on the scale that differentiate performance for each competency) once we have collected and analyzed a larger, representative sample with performance data.

As a proxy for tipping points, norms for the ESCI will be established on the basis of frequency of demonstration of the competencies by the sample population – participants will be able to compare their score against the 25th to 75th percentile range. Initially the sample population will consist of the pilot group, but it will grow with the use of the instrument. When sufficient data have been generated, norms will be re-calculated and re-applied.

And, finally, testing of all these changes in a pilot study

A pilot study was conducted with a total of 116 participants (79 from the U.S. and 37 from the U.K.) and 1022 raters (810 from the US and 212 from the UK).

Raters were asked to fill out the pilot ESCI and provide feedback on the questions and the instrument as a whole. The intended number of items per competency in the final instrument was six; however, the pilot study contained an extra two items per competency. This allowed us to choose the best six items and eliminate the poorer ones. In choosing the final items we tried to maintain one reverse-scored item per competency. Reverse-scored items are useful to break up the rhythm in answering questions – they help to ensure that raters read and carefully consider each item. Once we selected the best six items, we examined raters' comments to clarify and improve the wording of any items that users indicated were problematic.

What did we conclude from the pilot?

The ESCI Model

The revised model of emotional and social intelligence emerging from our research contains 12 competencies organized into four clusters: Self-Awareness, Self-Management, Social Awareness, and Relationship Management. These clusters are the same as the ECI-2.

Self-Awareness concerns knowing one's internal states, preferences, resources and intuitions⁴.

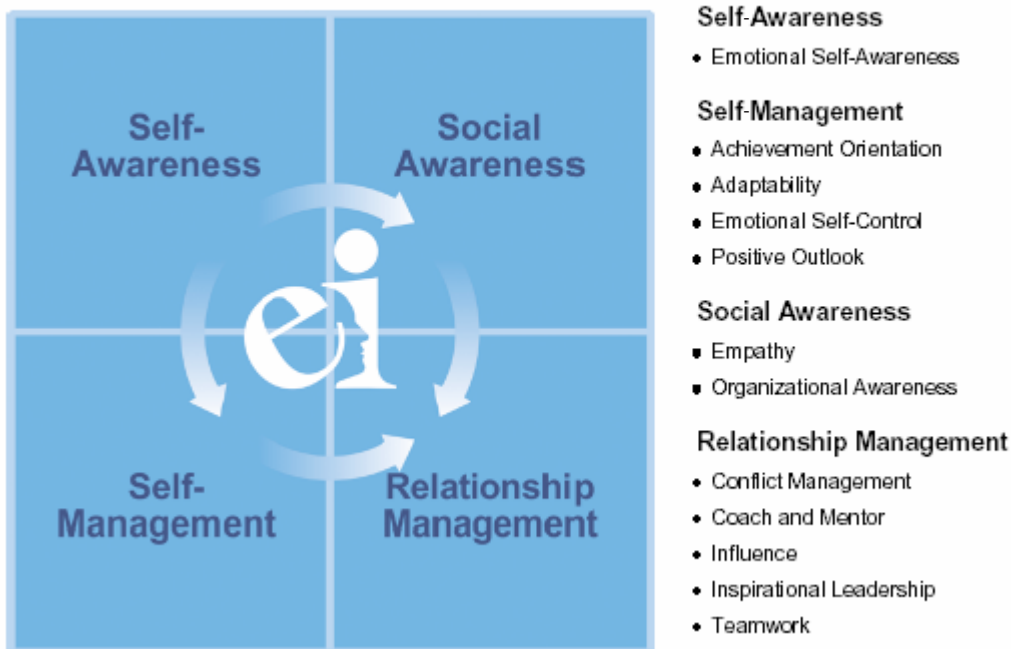
Self-Management refers to managing one's internal states, impulses and resources.

Social Awareness refers to how people handle relationships and awareness of others' feelings, needs and concerns.

Relationship Management concerns the skill or adeptness at inducing desirable responses in others.

⁴Although self-awareness serves as a foundation for the other clusters of competencies, ECI-2 scores often showed lower scores for self-awareness than for the competencies that theoretically build upon it. This is because it is difficult for raters to assess a person's self-awareness. In the ESCI we attempted to correct this issue by re-wording the items to reflect behaviors that would be more visible www.haygroup.com

ESCI Pilot Model



Psychometric properties: Reliability

The reliability of the scales in the ESCI remains comparable with the ECI-2. Table 1 shows the reliabilities for each competency and provides a comparison with the most similar ECI-2 competencies. These numbers are based on the pilot study, which contained 1022 raters.

Table 1: Cronbach's Alpha Reliability for ESCI Competencies

Cronbach's Alpha Reliability for ESCI Competencies		Cronbach's Alpha Reliability ⁵ for the most similar ECI-2 Competencies	
Emotional Self-Awareness	.83	Emotional Self-Awareness	.87
Achievement Orientation	.74	Achievement Orientation	.77
Adaptability	.76	Adaptability	.73
Emotional Self-Control	.80	Emotional Self-Control	.83
Positive Outlook	.76	Optimism	.75
Empathy	.79	Empathy	.80
Organizational Awareness	.76	Organizational Awareness	.80
Conflict Management	.84	Conflict Management	.73
Coach and Mentor	.83	Developing Others	.85
Influence	.74	Influence	.76
Inspirational Leadership	.79	Inspirational Leadership	.86
Teamwork	.87	Teamwork & Collaboration	.75

⁵ Total Others Ratings (N = 22,089), as referenced in the ECI Technical Manual November 2005.

Psychometric properties: Factor Analysis

A principal axis Exploratory Factor Analysis with promax rotation⁶ showed the factor analytic properties of the instrument to be outstanding. Table 2 shows a summary of the results of the factor analysis.

Table 2: Summary of Factor Analysis Results

Competency	Summary of Factor Analysis Results
Emotional Self-Awareness	All questions loaded on expected factor
Achievement Orientation	4 of 6 questions loaded on expected factor
Adaptability	All questions loaded on expected factor
Emotional Self-Control	All questions loaded on expected factor
Positive Outlook	All questions loaded on expected factor
Empathy	All questions loaded on expected factor
Organizational Awareness	All questions loaded on expected factor
Conflict Management	All questions loaded on expected factor
Coach and Mentor	5 of 6 questions loaded on expected factor
Influence	5 of 6 questions loaded on expected factor
Inspirational Leadership	All questions loaded on expected factor
Teamwork	All questions loaded on expected factor

The ESCI as a new instrument

Naming the new instrument ESCI recognizes the fact that it measures both emotional intelligence competencies (i.e. those in the self-awareness and self-management clusters) and social competencies (i.e. those in the social awareness cluster and the relationship management cluster).

The pilot study has reaffirmed that the ESCI measures the behaviors that matter: those that contribute to emotionally and socially effective performance. The psychometric standards achieved in the statistical analyses provide reassurance that the ESCI focuses on behaviors – and the relationship between them – that are observable, recognizable and distinct.

Item choice and wording

The final items (a total of 72) were drawn from a larger number of piloted items (96), allowing us to select the most valid and reliable ones. In the final version of the ESCI:

- each competency scale has five items and most have an additional reverse-scored item.
- the items in each competency contain a key word or phrase to link all items in a scale. This is often related to the intent of the expressed competency or the central concept of the competency. This means that the instrument is easier to understand and complete, enhancing the credibility and usefulness of participants' feedback data.

The removal of developmental levels (resulting from the re-wording of items) delivers a behavioral model which can be applied more satisfactorily to a wide range of work contexts, job roles and levels.

⁶ See G. Buchanan and M. Seligman (eds.), *Explanatory Style* (Hillsdale, NJ: Lawrence Erlbaum.)

The ESCI feedback package

After completing the ESCI and seeking feedback from others, participants will receive an ESCI feedback report which, as with the ECI-2, provides the basis for a coaching conversation. The feedback package behind the ESCI will show participants how others experience their behavior in terms of the consistency with which they demonstrate emotional and social intelligence competencies.

The format of the feedback report, and the removal of developmental levels, will free participants from the performance anxiety that can result from comparing their data to a set of target levels: levels which may or may not be relevant to their job roles. Instead, it encourages participants to appreciate their strengths, to recognize how consistently they do certain things, and to identify what they can do more of to be even more effective.

What does this mean for users of our EI instruments?

Choosing between the ECI-2 and the ESCI

The outcome of this work for the coaches and practitioners who are accredited to use the ECI is that there is now a choice of instruments. While we are more than pleased with the psychometric goal that the ESCI has attained, and satisfied that the revisions to the items and feedback package ensure even wider applicability, we realize that there are many reasons why practitioners may want to continue to use the ECI-2, or to use both in different circumstances.

The ESCI will be of particular value when working with clients for whom:

- the statistical rigor of the instrument is critical (i.e. university and college faculty who may want to study feedback data in detail or track it over time).
- the algorithm, developmental levels and target levels may detract from the coaching conversations they need to have about their personal strengths and aspirations.
- the focus on 12 competencies (instead of the ECI-2's 18) provides the basis for more meaningful coaching conversations.
- improving their performance by being more consistent in a range of behaviors makes more sense than increasing the complexity of specific behaviors – doing more of what you already do well is a great way to become more effective!

However, the ECI-2 will meet the needs of clients who:

- need to make comparisons between current feedback data and previous ECI feedback.
- want to compare composite data, across a group of participants, to previous ECI feedback for the same or different groups.
- find the ECI-2 developmental levels useful and applicable to their organization.
- need the credibility that comes from the large database behind the ECI-2, and are unwilling to wait for the ESCI database to grow sufficiently to meet their needs.

Because of the fundamental similarities between the ESCI and the ECI-2, minimal additional training will be required to equip practitioners and coaches with the knowledge required to deliver either instrument.

Appendix 1: Changes to the competency scales in the ECI-2

Emotional Self-Awareness as the result of merging it and Accurate Self-Assessment

These two scales were highly correlated in data analyses and dissertation samples. They tend not to be distinguished from each other in coaching (i.e. a person showing one high but needing to work on the other). They always align with the same factor in Factor Analyses. In other words, they seem to be two aspects of the same ‘thing’. The resulting scale is called **Emotional Self-Awareness** because that seems to be the core of the ‘thing’.

Dropping Self-Confidence

Self-Confidence is not distinguishable from Achievement Orientation and the Self-Management cluster in these analyses and earlier ones. Its correlations with other scales are not high, but it does not add significant value, either conceptually or practically. In coaching, Self-Confidence is often better determined by the relative position of the person’s Self-Assessment as compared to the Other-Assessments, than by the scale score itself. Lastly, when used in other cultures, it is likely to cause consternation and confusion. Cultural norms seem to affect expression of Self-Confidence to a great deal. Accredited coaches in other countries have claimed that, in their culture, several of the items are more indicative of arrogance or discourteous behavior.

Achievement Orientation as the result of merging it and Initiative

These two scales align with the same factors in the Factor Analyses and show high correlation. Initiative shows poor reliability and stability. Several of the items seem to trigger in respondents the achievement imagery of improving performance.

Changing the name of the Optimism scale to Positive Outlook

Optimism is a trait. Seligman and others have shown that repeatedly⁷. By having it with the same label we may confuse personality traits with EI and behavioral competencies. But a positive view of life and the future seems to be a distinct disposition. Some people clearly express positive views about the future and others do not. So rather than drop it, my recommendation is to change the name to allow for a more direct observation of behavior and minimize confusion with the trait.

Dropping Transparency

This scale does not distinguish itself statistically. It aligns with one group of scales in one analysis and then another group in another data set. It does not give us a clear benefit empirically and is of limited use in coaching. Although the characteristics of authenticity and congruence are important to leaders and managers, it seems they prove too tricky to observe and assess within one behavioral competency.

Dropping Service Orientation

This competency seems to be the application of Empathy to clients and customers. Statistically it stands out from Empathy and Organizational Awareness, the other two major competencies in the Social Awareness cluster. But since it seems to be a sensitivity or role orientation characteristic it has limited value in coaching, in comparison to these other two. Thus, for the sake of parsimony, it was dropped.

⁷See G. Buchanan and M. Seligman (eds.), *Explanatory Style* (Hillsdale, NJ: Lawrence Erlbaum.)

Dropping Change Catalyst

This scale is highly correlated with Achievement Orientation. It aligns with it in the Factor Analyses. It seems to be a consequence of other competencies being used in a situation, or of a disposition to want to change things.

Changing the name of Developing Others to Coach and Mentor

The term Coach and Mentor more accurately reflects the essence of the Developing Others, when taking into account the changes made to the item wording for this competency. In addition, it seemed a better description of what effective leaders do.

Appendix 2: Changes to the competency scales in the ECI-U

Drop Trustworthiness and Conscientiousness from the ESCI-U

In contrast to the executive or experienced managerial audience for the ESCI, undergraduates or graduate students are often reliability challenged! In discussions with many faculty, we can attest to the widely shared observation that we need to be helping some students understand that they are supposed to live up to promises made, get to class on time, show up for work when they say they will, and not cheat on tests or borrow papers from friends. But Trustworthiness and Conscientiousness don't seem to predict effectiveness, just presence (or attendance), so we dropped them.

Drop Communication

Communication ability is a major concern and development target for undergraduates and MBAs. It is less relevant for graduate students with work experience, but that is not the major market for the ESCI-U, as I understand it. It is also a competency on which schools and programs can show significant value-added in the outcome research and they can develop courses, workshops and training programs to enhance it. The results of competency development on this scale are easily observed by others: teachers, faculty, and recruiters. But communication is a big area in itself, and it can be assessed in other ways more directly than through a 360° test. So, for parsimony, we dropped it.

Maintain the cognitive cluster of Systems Thinking and Pattern Recognition for the ESCI-U WSOM and ESADE versions

Collegiate audiences, whether using the ESCI-U for classes and student development or for outcome assessment, are as concerned with cognitive competency development as emotional and social competency development. In most schools, faculty are more concerned about cognitive development. Especially for the outcome assessment applications, inclusion of these two cognitive competencies strengthens the researcher's ability to provide useful feedback to the program and school. These two competencies clearly align with separate factors in the factor analyses.

Merge a few items from Cultural Awareness into the Empathy scale

We had reinserted this scale into the ECI-U because of the developmental agenda of many programs – to help students learn to appreciate and understand people who are different from them. But it really is an advanced application of Empathy. If a student is low on it, do they really need another scale to show them that others think they are prejudiced? Wouldn't that emerge from the Empathy scale, especially if it included an item or two related to this area?