To see the performance of each approaches at a glance, we summarized the above results in Table 1.3. In the Table 1.3, identical means the maximin LHDs obtained by ILS approach is identical compare to the best known results available in the literature whereas worse means the maximin LHDs obtained by ILS approach are worse compare to best known results. Notice that the maximin LHDs obtained by SA_M approach are not reported in the Table 1.1 and Table 1.2 as there are few values available in the literature [Morris and Mitchel (1995)] and all of which are worse with respect to MLH_ILS [Jamali (2009)] as shown in the Table 1.3. Moreover in the Table 1.2 the maximin LHDs obtained by ESE approach are not reported in Table 1.2. As ESE approach performs relatively better compare to PD or SA, so we will compare ILS with ESE separately. It is observed that except dimension k = 3, in which PD performs better, ILS outperforms compared to other approaches considered. We observe that ILS is able to detect a very large amount of improved solutions with respect to the best-known ones [Currin C et al.]. This is, especially, true at large k values. For $k \geq 6$, with the exception of few numbers of *N values*, all the solutions returned by ILS are better compare to the best-known results. It is worthwhile to remark that for large (k, N) values the improvement of each LHD obtained by ILS approach is very significance.

Table 1.3: the comparison among several approaches for finding maximin LHDs for N=2 to 100 in each dimension k

	Number of best					Identical	Worse
k	***PD***	***SA***	***SA_ M***	***Web***	***ILS***	***ILS***	***ILS***
3	**61**	0	0	*65*	**14**	20	65
4	**02**	0	0	*47*	**34**	18	47
5	00	0	0	*11*	**78**	10	11
6	00	0		00	**90**	09	00
7	00	0		00	**92**	07	00
8		0		00	**93**	06	00
9		0		00	**93**	06	00
10		0		00	**92**	07	00

Though the performance of ILS approach is significantly better compare to other approaches consider here, but the approach will be effective if it is efficient i.e. the algorithm performs the job within acceptable time. So it is needed to comment about the computation times. It is worthwhile to mention here that there is no information regarding times to obtain the Web's results. Anyway, for this demand, the computational cost of the approaches is reported in the Table 1.4. It is noted that the elapsed time of ESE approach is not available. It is, however, quite clear that ILS is more computationally demanding with respect to PD and SA. Such higher costs are clearly rewarded in terms of quality of the results but the quality of the results might be wondered if the time restrictions are imposed on ILS. According to some further experiments that were performed, it would be realized that, especially at large k values, equivalent or better results with respect to the PD and SA ones, could quickly be reached by ILS [Jamali (2009)]. Therefore, it seems that at large k values even few and short runs of ILS are able to deliver results better than those reached by PD and SA. That is ILS approach outperforms compare to other approaches considered regarding L^2 distance measure.

Table 1.4**:** Comparison of computational cost

Total Elapsed Time (hrs)			
k	PD	SA	ILS
3	145	500	164
4	61	181	507
5	267	152	767
6	108	520	1235
7	232	246	698
8	--	460	846
9	--	470	1087
10	--	470	1166

Now we will compare the performance of ILS with respect to ESE regarding maximin LHDs by summering the above maximin LHDs values for ILS and ESE approach. Table
1.5 displays the intimate comparison between ILS and ESE approach regarding maximin LHD's values. It is observed that except dimension 4, in which performance of both approaches are comparable, ILS always outperforms significantly. Moreover we notice that for k > 5, the almost all maximin LHDs obtained by ILS approach are the better.

Table 1.5**:** Comparison between ESE and ILS regarding Maximin LHDS

N= ,…, 00	No. of Best LHDS in	
k	**ESE**	**ILS**
3	24	43
4	45	35
5	11	77
6	0	92
7	1	91
8	0	92
9	0	93
10	0	92

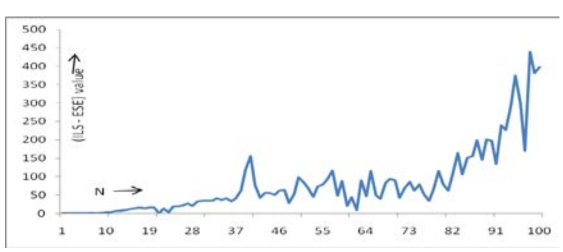

Figure 1.1 Effect of *N* on the performance of ILS approach upon ESE approach for $k = 10$

Now what are the effects of increasing of *N* on the performance of ILS approach upon ESE approach is depicted in the Figure 1.1. For this contest we consider k =10 and *N*= 2,…., 100. In the Figure 1.1 the horizontal line indicates N (number of design point) and vertical line indicates the difference between the D_1 value of MLH_ILS and MLH_ESE (MLH_ILS - MLH_ESE). It is observed in the figure that there is a significant effect on N. For the increasing of *N*, ILS approach find out much batter LHDs compare to ESE approach. From the above discussion it is clear that ILS approach is state-of arts regarding maximin optimality in Euclidian distance measure as well as computational cost.

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